TECHNOLOGY DEPT.

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · MACHINERY · PARTS · ACCESSORIES · TOOLS

Vol. 15. No. 1966 — Entered as second-class matter Aug. 27, 1925, Post Office, N. Y., N. Y. Under Act of March 3, 1879 — NEW YORK, SATURDAY, APRIL 22, 1933 — 5 Cents. $12 Per Year.

PUBLIC LIBRARY APR 24 1933 DETROIT

First Copy

1932 Car Registrations In U. S. Drop 6.6 Per Cent.; Total 24,136,879 Vehicles

Trucks Show Decline of 6.7% to 3,233,457; Automobiles, Including Buses and Taxis, Total 20,903,422 or 6.5 Below 1931

Washington, April 21.—Last year 24,136,879 motor vehicles were registered in the United States, state authorities have reported to the Bureau of Public Roads, United States Department of Agriculture. This represents a decline of 6.6 per cent. from the preceding year. The automobiles, taxis and buses totaled 20,903,422, a decline of 6.5 per cent., and motor trucks and road tractors totaled 3,233,457, a decline of 6.7 per cent.

The gross receipts from registrations, permits, etc., amounted to $324,273,510. These funds were allocated as follows: State highways, $155,911,963; local roads, $75,964,336; payments on road bonds, $39,339,980; collection and administration costs,

(Continued on Page 4)

DETROIT CAR MAKERS TAX OUTPUT OF PARTS AND MATERIAL PLANTS

Detroit, April 21.—For the first time in many, many months, automobile manufacturers actually are hounding parts and equipment makers to give them deliveries. Some parts companies are working overtime and they, in turn, are hounding steel mills and other materials suppliers for shipments. The Briggs and Murray plants are working six days a week on Ford bodies. This latter company has lifted production on its V-type eight to about 2,500 units a day. It is understood that the Ford production total for April and May will probably exceed the 100,000 level which was the schedule up to a few days ago.

Production activity had been stepped up also at the Chevrolet plant, as announced some days ago

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TOLEDO EMPLOYMENT UP 20%; AUTOMOTIVE PLANTS SPEED OUTPUT

Toledo, O., April 21.—A steady improvement in automotive industries has resulted in a gain of more than 20 per cent. in employment since the banking holiday late in February, according to reports from the various plants here.

There is no question but that conditions are showing general improvement, R. C. Carpenter, vice-president and general manager of the Spicer Manufacturing Corporation, pointed out. Improvement in the automobile industry is especially noticeable in the commercial vehicle line, he said.

At both the Spicer company and the Logan Gear Company, some de-

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HARTFORD DEALERS CHOOSE ROHRER TO GUIDE ASSOCIATION

Hartford, Conn., April 21.—Fred C. Rohrer, treasurer of the Motor Sales Company, Ford dealership of 111 Park St., has been elected president of the Hartford Automobile Dealers' Association, succeeding Major H. H. Skerrett, Jr., of the Packard Motor Car Company of New York Hartford branch at 150 Washington St.

P. A. Eddy of the Hartford Buick Company, 80 Washington St., was chosen vice-president; Harry C.

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Higher Car Prices Seen in Detroit With Country Off Gold Standard

Leaders Refuse to Be Quoted, but Price Revision Is Expected to Be Discussed at Meeting of Sales Managers Next Week

By CHRIS SINSABAUGH

Detroit, April 21.—That a general increase in the prices of automobiles will follow the action of the government in going off the gold standard is predicted in the motor capital. While factory executives will not discuss the action at Washington at the present time, still there are some who do not hesitate to express their belief that the time is close at hand when price increases can be made and accepted by the buying public. No one, however, wants to be quoted.

It is felt here that the way has been paved through the recent statement of Alfred Reeves, vice-president and general manager of the National Automobile Chamber of Commerce, for such action. Reeves has said he thought lists ought to be advanced from 5 to 10 per cent. That was before we dropped the gold standard. Now that we have, there seems to be even stronger reasons for doing this and it is thought the industry is ripe to follow the suggestion.

While the subject probably is not scheduled for discussion, it is thought that the meeting of the sales managers' committee of the National Automobile Chamber of Commerce, which will be held in Detroit next week, undoubtedly will consider the possibilities.

Those I have talked with are inclined to favor a 5 per cent. jump. That doesn't sound like much expressed that way, but one executive who knows how to handle a sharp lead pencil, figures it out that this would give the industry as a whole at least $100,000,000 increased revenue in the eight months that remain of the 1933 selling season. It is estimated, too, that the dealer body would increase its sales revenue in excess of a million a month.

Knowledge that a price increase was coming would be the greatest sales stimulant the industry could have, it is contended, and sales managers point to Illinois as an example of public response to increase prices. In Gov. Horner's state a 3 per cent. general sales tax went into effect April 1. In the last ten-day period in March, automobile sales jumped to astounding figures, all caused by the eleventh hour rush to buy cars before the tax became effective.

Another example was had last year when the Federal excise tax went into effect. Prior to that there

(Continued on Page 8)

HUDSON SPEEDS UP TO FULL TIME RATE; 2,928 ORDERS ON HAND

Detroit, April 21.—Taking form too soon to be influenced by financial and general business developments of the past two days comes encouraging news detailing the speeding up of operations in the plant of the Hudson Motor Car Company.

Inquiry reveals the fact that Hudson's regular working schedule now calls for full time or five and a half nine-hour days per week. The commercial car department engaged in the production of the company's new line of light delivery trucks is regularly working six days per week to speed sample shipments and

(Continued on Page 2)

PIERCE-ARROW SALE OF CUSTOM TYPES TOP '32 IN FIRST QUARTER

Buffalo, N. Y., April 21.—Roy Faulkner, vice-president of Pierce-Arrow, today announced that his company sold more custom cars, more cars priced above $4,000 than were disposed of in the corresponding period of 1932. Mr. Faulkner hails this as evidence that many people who have been practicing unwarranted self-denial, under the guise of thrift, are beginning to spend money again in normal volume and are returning to the fine custom car market.

R. H. Faulkner

"Retail salesmen," says Mr. Faulkner, "have been greatly surprised to find that many prospects whom they have been trying to interest in Pierce-Arrow's least expensive models actually are interested in

(Continued on Page 2)

GEAR SHIFTING ELIMINATED IN NEW REO CAR MODELS

Lansing, Mich., April 21.—The revolutionary development in motor car design, which Automotive Daily News announced some days ago as impending by the Reo organization, was formally announced today and takes the form of a car with the gear-shift lever completely eliminated.

Actual inspection of the car reveals the fact that instead of the shift lever, there is a gear selector on the instrument panel. When the car is standing, this is in neutral position. The engine is started in the conventional manner. The clutch pedal is depressed as usual, and the selector is pushed forward, just as the choke button is pushed forward after the engine of the conventional car is started. The clutch is engaged as usual. No change in driving technique is involved. The driver simply engages the clutch and steps on the accelerator pedal and the car moves away in the traditional manner.

As the engine accelerates it seems to slow down a bit, while still pulling smoothly. Gently, without any

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Time to Attack - - - *An Editorial*

THERE is a new feeling abroad in the automotive industry. We have passed from defense to attack. The order is "Forward, all along the line." All signs point to a revival of motor vehicle buying in proportions that could not have been hoped for a few brief weeks ago.

Walter P. Chrysler a short time ago remarked: "There is no patent remedy that will bring prosperity back to America. The one way that business can most quickly regain its normal stride is by the introduction of products of such outstanding value that the public will buy in increased numbers, thus placing more money in circulation and clearing the clogged channels of trade. I believe that this is a time of opportunity and that we should apply to our own business the sound principles urged by the President upon the people at large: Courage and confidence."

That this was not an idle statement is proved by the fact that this week the Chrysler organization is offering to the public two new Plymouth lines and backing the announcement with a far reaching campaign of promotion and advertising. Evidently the astute Mr. Chrysler feels that the time has come for the automotive industry to pass from defense, from a three-year rear guard action to avert disaster, to an attack all along the line. A manufacturing company with exhaustive financial reports and analyses at its command does not take a step of this kind blindly. It does not pour out money in promotion and advertising without being certain that the market is there to repay the money and effort put into it.

We who stand on the side lines, so to say, have seen many convincing signs that the situation is undergoing a deep and far reaching change for the better. The automotive industry looked for a sales bulge beginning about the middle of April. It came a full week ahead of time and from scattering reports has been larger than could have been anticipated. With stocks in dealers' hands reduced below any level seen in recent years and with the manufacturers building practically from day to day on orders received, the increase in sales was instantly reflected in production.

A little over two weeks ago one of the best informed statisticians in the automotive industry estimated April production

(Continued on Page 4)

U. S. STEEL SEEKING BAR MILLS FROM FORD

Pittsburgh, Pa., April 21.—The United States Steel Corporation is considering the purchase of the bar mills of the Ford Motor Company at River Rouge, Mich., it was said here today.

The corporation has no plant at Detroit, and it was explained that it wished to improve its competitive position in the automobile territory by obtaining finishing mill capacity, having lost much business to the National Steel Corporation, the only large producer with facilities there.

The Carnegie Steel Company, the principal subsidiary of United States Steel in this district, formerly supplied about three-fourths of the steel requirements of the General Motors Corporation from its plant at Duquesne, but for two years this plant has turned out virtually no material for General Motors.

PIERCE-ARROW SALE OF CUSTOM TYPES TOP '32 IN FIRST QUARTER

(Continued from Page 1)

cars ranging several hundred dollars higher in price. This is directly the reverse of the situation a few months ago. Prospects almost without exception were thinking down the scale instead of upward.

"Particular activity has centered in the market for cars of the chauffeur-driven type. Exemplifying this is the sales record of one Pierce-Arrow salesman in New York city, who sold five Pierce-Arrow custom built inclosed-drive limousines within a period of just a little more than a week. All of these cars, four of which were sold to women, were delivered at prices above $4,000.

"Paralleling this performance at the time was the sale of four other custom-built Pierce-Arrows by another salesman in St. Louis, indicating that these encouraging developments in the upper price bracket are not confined to any particular section."

HUDSON SPEEDS UP TO FULL TIME RATE; 2,928 ORDERS ON HAND

(Continued from Page 1)

orders for the new half-ton units.

Many material shipments normally specified for freight transportation are being ordered forward to the factory by express to be available for the spurt taken by dealers' orders and by the increasing rate at which Hudson-Essex merchants request the shortening of shipping dates.

The lake boat shipments are increasing drive-aways, some of them to far Southern points, are being organized by dealers suddenly pressed for earlier deliveries by customers.

Domestic orders on hand as of April 20 totaled 2,512 passenger cars scheduled for immediate delivery, with 426 orders for export.

April retail deliveries so far reported by Hudson-Essex dealers give every assurance of making the month's business the largest April volume since 1931.

HOOD TIRE CATALOGUE

Akron, O., April 21.—Profusely illustrated, both with pictures of its completed automobile and truck tires and cross-sectional drawings showing their construction, with accompanying text explaining the construction features, a sixty-eight-page booklet on its 1933 line of products has just been issued by the Hood Tire Corporation, Akron, O.

VAUXHALL

New York, April 21.—Vauxhall Motors, Ltd., (controlled by General Motors Corporation) reports trading profit was increased to £375,453 from £310,460. Net profit increased to £123,349 from £56,040. This reduces the deficit on profit and loss account to £268,995 from £392,344. Export sales in 1932 showed a gain of 307 per cent., compared with 1931.

N. Y. SECTION A. I. E. E. TO MEET APRIL 28

New York, April 21.—A general meeting and student branch convention of the New York section, American Institute of Electrical Engineers, will be held Friday, April 28. The students will meet in the morning for trips of inspection to local plants. In the afternoon they will gather at the Engineering Auditorium, 33 West 39th St., where they will be addressed by Farley Osgood, consulting engineer, past-president of the A. I. E. E., on "Experience as an Engineer," and Dr. E. E. Free, consulting engineer, on "Engineers in Business." A dinner for students will be held at Rutley's Restaurant, Broadway and 40th Street.

In the evening the general section meeting at the Engineering Auditorium will be addressed by Dr. W. E. Wickenden, president of the Case School of Applied Science, on "The Engineer and the New Deal." The competition for New York section student prizes will consist of fifteen-minute presentations by the three finalists. Announcement of the new officers of the section will be made.

Hay Says Boss Must Watch His Used Car Dept.

Chicago, April 21.—Close personal attention to his used car operations on the part of the "boss" is one of the crying needs of the automobile trade, Thomas J. Hay, president and general manager of the National Used Car Market Report, Inc., stated today.

"In some important respects, the used car end of the business strikes closer to home than the new car end," said the Blue Book and Red Book chief. "With used cars, the dealer, distributor or branch manager must be both a good buyer and a good seller, since the new car profits are tied up in the used car trades. He alone must shoulder his selling expense for the used car, including the advertising.

"This situation calls for maintaining used car activities upon an equal footing with those involving new cars from the standpoint of attractive surroundings and close personal attention by the dealer.

"In my travels about the country I have noted a surprising number of instances of evident dislike by the boss to personal contact with his used car department. Too frequently the boss is willing to hire a used car manager and a few salesmen, and then more or less wash his hands of this very essential department of the business.

"Most of the desirable portion of the establishment is assigned to the new car activities. The nice, comfortable offices are given to the new car sales manager and all the style and class of the establishment favors the new merchandise.

"The used car manager generally draws an office in any old place where he can install a desk and a couple of chairs. Frequently the customer is ushered into a dim, dirty, poorly lighted sales room in the rear or off to one side of the new car department, or else he is told that this department is down the street or on a lot. All this, we must agree, is a shortsighted policy on the part of those who employ it."

FINANCIAL NEWS

CHRYSLER

New York, April 21.—The Chrysler Corporation reports for the three months ended on March 31 a consolidated net loss of $3,038,081 after charges, interest and taxes. This compares with a net loss of $2,066,485 in the similar period last year. Sales totaled $33,059,488 in value, against $37,368,443. Depreciation and amortization of $3,190,134 were charged against sales and expenses, compared with $2,958,215 in the first quarter of last year.

Current assets on March 31 last, including cash of $18,545,567, amounted to $54,342,715 and current liabilities $11,035,347, compared with cash of $33,735,861, current assets of $65,681,796 and current liabilities of $16,395,379 on December 31 last. The decline in cash was due partly to $6,520,504 on deposit in closed or restricted banks: Earned surplus fell from $27,372,721 to $24,334,639. Total assets were $131,039,248, compared with $138,386,702.

Sales of passenger and commercial cars to distributers and dealers totaled 57,861 units against 55,704 in the first quarter of 1932.

Walter P. Chrysler, president and chairman of the board, states that in the first quarter of this year the company obtained the largest share of the domestic retail sales since it started in business—21.4 per cent. This compares with 14.9 per cent. in the first quarter of 1932 and 8 per cent. in the similar quarter of 1931. The corporation's export business was 48.3 per cent. more than in the first quarter of 1932.

GENERAL MOTORS

Detroit, April 21.—General Motors Corporation today offered 500,000 shares of common stock in the new National Bank of Detroit for sale at $25 a share. Subscriptions may be made in any amount, subject to rejection or reduction by the corporation, officials said. The Reconstruction Finance Corporation, which owns $12,500,000 in preferred stock, will not offer its stock for sale at present.

General Motors and the finance corporation capitalized the new bank for $25,000,000, the motor corporation obtaining its share in common stock and the finance corporation its share in preferred stock.

With the announcement that the common stock is on sale the motor corporation also announced the selection of twelve new senior officers, ten of them former officers of the two closed banks the new bank replaced.

The new officers, named at a meeting of directors late yesterday, are: John M. Dodge, Herbert L. Chittenden, R. H. Gaines, Frank E. O'Brien, Edward H. Rogers, Donald F. Valley, James L. Walsh and H. Y. Lemon, vice-presidents; E. F. Failor, controller; A. T. Wilson, assistant vice-president; A. A. McGonagle, chief accountant, and Benjamin E. Young of Kansas City, assistant to the president.

HUPP

Detroit, April 21.—Hupp Motor Car for the quarter ended March 31 shows net loss of $522,997 after charges and depreciation, compared with net loss of $596,176 in the like quarter of 1932.

EATON MFG.

Cleveland, April 21.—Eaton Manufacturing and subsidiaries, including Wilcox-Rich Corporation, report for the quarter ended March 31 loss of $207,429 after taxes, depreciation, etc., but before dividends on Wilcox-Rich Corporation Class A stock comparing with profit in the 1932 quarter of $57,723 before Wilcox-Rich Class A dividends.

YELLOW ACCEPTANCE

Chicago, April 21.—Yellow Manufacturing Acceptance Corporation (controlled by Yellow Truck and Coach Manufacturing Company) and subsidiaries reports for 1932 net income after interest and other charges $636,075, equal to $21.20 a share on 30,000 capital shares, against $626,151, or $20.87 a share, in 1931.

SPARKS from DETROIT

Guardsmen All

* * *

Moock's Rise

* * *

Bad Bills

* * *

Art

* * *

Chris Sinsabaugh
Detroit Editor

TWO new models announced within one week of each other and at a time of the year when retail sales and not new jobs are uppermost in the minds of automobile manufacturers! Who ever heard of such a thing before Walter P. Chrysler took our breaths away this week by doing it.

Roughly, half a million Plymouths of a wholesale value of $300,000,000, have come off the assembly lines up to now and the goal Chrysler has set for his lieutenants, Moock, Frazer, vanDerZee and Peed, respectively Plymouth, Chrysler, Dodge and De Soto sales managers, is 250,000 in the next twelve months.

* * *

WHENEVER I think of Chrysler's unusual method of marketing the Plymouth through the dealerships of the three other units of his big organization, Chrysler, Dodge and De Soto, I am reminded of Dumas' four guardsmen, D'Artagnan, Athos, Porthos and Aramis, because "one for all and all for one" seems to apply so aptly to the team work of the four sales managers, Moock, Frazer, vanDerZee and Peed. No one of them stands out above his fellows as a super-merchandizer—it's team work on the part of the four that has made Plymouth an outstanding figure in this industry of ours. It's a chain and without a single weak link.

* * *

NATURALLY in talking about the big four, the conductor feels that inasmuch as Harry Moock is head of Plymouth sales, it may be of interest to the column's cash customers to do a thumbnail sketch of that individual—tell how he has climbed in the past twenty years. O. K., you say?

Briefly, then: Moock started as a retail salesman in Denver, peddling Reo, Cole, Studebaker, Overland and Rauch-Lang Electric. Then a distributor with Colorado, Wyoming and New Mexico for his territory. Followed association work for a period, an executive first in the Denver's dealers' association and then a tri-state association.

Moock was the first general manager of the National Automobile Dealers' Association and went from there to Hudson as sales manager. Following that he was merchandising director of the Automotive Equipment Association, where he is credited with originating that famous slogan, "Ask 'Em to Buy." For three years prior to joining Plymouth he was a sales consultant.

* * *

THE WAY IT LOOKS NOW, we are going to find out if organized efforts on the part of the automotive industry can kill off injurious legislation. The battleground is Michigan and the truck interests, backed up by co-operation on the part of the National Standard Parts Association, are putting up the fight.

House Bill 364, now before the Michigan Legislature, is what's disturbing us. According to a bulletin issued by the N. S. P. A., the passage of this measure would render useless approximately $8,000,000 worth of trucks and trailers. It's said to contain impractical regulations as to size, weight, speed, brakes and routes, in addition to ridiculously excessive tax rates. Railroad interests are charged with drafting the bill.

This has been followed up by the truck interests, a meeting being held here the other night in which the Michigan Motor Transport Association played a part. Pierre Schon of General Motors Truck, was the leading speaker, furnishing plenty of ammunition in the way of charges against the bill. Schon pointed out that if trucks are reduced in number on the highways in this state, additional heavy tax burdens would be placed on passenger car owners. Fees on trucks would go up, for example, from $84 to $398 a year on a 1½-ton truck and on a 5-ton, from $168 to $1,034. Michigan, he said, makes 81 per cent. of all trucks sold.

* * *

ACROSS THE STREET from us there is considerable elation being displayed in the Campbell-Ewald section of the General Motors building, for H. T. Ewald has been advised that his agency has tied for first place in the number of art pieces selected for exhibit in the twelfth annual display of advertising art now on in New York city. Nineteen pieces were picked out of a total of 170 from all parts of the country. It's said this is the first time that a Mid-Western agency ever achieved this honor. Twelve of the nineteen selected were art pieces for the Cadillac Motor Car Company.

Other cars are bigger but none better

THE AMERICAN Austin

America's Most Economical Passenger and Commercial Cars

$275 up F. O. B. Factory

Write for details about non-conflicting and valuable franchise

American Austin Car Co., Inc., Butler, Pa.

Retail Salesmen — This Is Your Page

This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, success, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesman to make sales or avoid errors that cost you commissions.

Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.

IMPORTANCE OF CO-OPERATION BETWEEN FACTORY AND DEALER

In the current issue of the Executives Service Bulletin, published by the Metropolitan Life Insurance Company, there is an interesting article by William O'Neil, president of General Tire, on the co-operation that must exist between factory and dealer to build up a successful business in selective distribution. This will be interesting to other branches of the industry beside the tire manufacturing division. For the factory, Mr. O'Neil says that a successful dealer organization can be built only by "giving dealers the type of merchandise, co-operation and protection that will enable them to make money."

Mr. O'Neil's article follows:

I believe that an important factor in the favorable record of our company has been the realization that, as a small manufacturer, we can progress only to the extent to which we are able to enlist the co-operation of our retail dealers through the adoption of policies that treat the interest of the dealers as identical with our own. Ever since the General Tire & Rubber Company was established in 1915, selective distribution has been an important part of its merchandising policy. Our distribution is confined to one exclusive dealership in every city, and we attempt to make this dealer large and successful.

When we organized the company, our intention was not merely to make money, but to build an institution—an organization that would grow steadily and maintain its position in the industry. It was decided to make but one brand of tire, to sell it through high grade independent distributors only, and to build this tire up to the highest standards of quality and not down to a price.

It was while working the huge territory, including all of Kansas, Oklahoma, the Panhandle of Texas, New Mexico and western Missouri for a tire manufacturer who is now a competitor that many of the ideas were conceived which we inaugurated with our dealers when the General Tire & Rubber Company was organized. It was soon apparent that a dealer or distributor with too large a territory would find it unprofitable. Later, we started a factory in the rear of a Kansas City store, manufacturing tire patches, inner liners for tires and, in fact, all kinds of small tire accessories. We soon moved into a larger plant, engaging 100 men in the manufacture of accessories. By 1914, the manufacturing business had grown to a volume of $400,000. It was then decided to manufacture tires.

We continued the manufacturing in Kansas City and found that dealers who purchased our smaller articles were interested in becoming dealers for our tires. Knowing the distributor's viewpoint, through having been one, I determined to provide a product and a plan that would make dealers and distributors proud of their franchise—so we decided on the policy of selling one exclusive dealer in every city.

There are no classifications in our dealers or distributors. They all have our complete line. In all the larger trading centers the dealers handle our tires exclusively and sell no competitive makes, except those secured through change-overs or trade-ins. In the smaller markets some of our dealers may be handling some low-priced tires of competitive makes in order to provide for the small portion of their business that is interested in cheaper tires.

When we first started producing, tire manufacturers considered it adequate to sell their tires to car manufacturers and their dealers. We decided that we would concentrate on replacement business and not seek any original car equipment business from automobile manufacturers. It was just the right time for this idea and we were successful. We still adhere to this policy. Through the plan of seeking replacement business only, we have been able to stimulate the turnover on our capital investment. The best record of the larger companies is approximately a two and one-quarter times turnover—the average is one and one-half times. We were able to secure eight turnovers in sales last year on the actual amount of capital invested.

There is a permanency in the General Tire distributing organization not always found in this industry. Distributors, once affiliated with our company, rarely go over to rival organizations. This evenness and uniformity in our distribution helps our system of production. Moreover, the company has no one distributing outlet doing more than 1½ per cent. of the total volume of the company's distributor business, and so we cannot be unduly affected by the loss of any one oulet. Whenever, for any reason, a dealer gives up the line, there is likely to be a qualified dealer in the community waiting to take on General tires. Dealers seldom give up the franchise, however; when it does happen it is generally because they have not fully understood the advantages of our policy.

General tire distributors are selected carefully and the company protects them by giving them exclusive distribution of the product in their territory. As a policy, our large consumer sales, such as national accounts, are sold either by salesmen direct from the factory or by our distributors themselves. In either case the distributor in the trading center involved makes the delivery on which he receives a commission from the factory when this sale is reported. The chief sore point seems to be that the number of these national accounts is constantly increasing, due to the fact that many smaller companies have been merged with larger enterprises, whereupon the purchasing may be centralized. When this happens the purchasing thereafter may be done nationally and the local distributor is apt to lose out. This, of course, works both ways, as some distributors have received business that formerly went elsewhere.

The only obligations we assume with our distributors are to give them exclusive territory, plus the regular policy obligations of the tire industry, such as a thirty day decline protection. As a policy we do not consign merchandise. However, we have consigned stocks at strategic points where the distributor operates a warehouse for us in connection with his own business.

Looking over a rather long record of successful operations, I believe that an indispensable part of this progress has been the loyalty of our distributing organization. That can be built up only by giving dealers the type of merchandise, co-operation and protection that will enable them to make money on a manufacturer's line.

PRINCIPLES OF SUCCESSFUL RETAIL STORE LOCATION STUDIED

An analysis of the fundamental factors underlying the location and distribution of a city's retail stores, as indicated by a case-study of the retail trade pattern of a representative metropolitan area, is presented by the Department of Commerce in a new report made public today entitled, "Location Structure of Retail Trade."

In many respects a pioneering work in its field, the store location study was undertaken by the Bureau of Foreign and Domestic Commerce at the request of and with the co-operation of a number of business and research groups, including the American Transit Association, the Institute of Traffic Engineers, the Erskine Bureau for Street Traffic Research of Harvard University and trade associations of the city of Baltimore, Md. It is the work of I. K. Rolph of the Merchandising Research Division of the bureau and was carried out under the direction of H. C. Dunn, chief of the division.

The store location study, which is expected to prove of especial interest to retail and wholesale merchants, store location specialists, market analysts, realtors, city planners and transportation engineers throughout the country, is based upon a first-hand study of conditions in the city of Baltimore, in combination with an analysis of the retail trade data made available by the National Census of Distribution.

Retail trade in a metropolitan area, the study finds, tends to be segregated into five distinct forms of retail developments, dependent for their location and characteristics primarily upon the structure of the city itself. These types of trade developments are classed as: The central shopping district, sub centers, "string streets," neighborhood groups and a "not concentrated" classification.

In a city such as Baltimore, it is shown, the central shopping district comprises no more than 0.14 square mile of area, has only 6.1 per cent. of the city's retail stores, and yet accounts for 28.1 per cent. of the total volume of retail trade. Thirty-

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OUR LEADING DEALERS

And How They Got That Way

A series of brief biographies of outstanding motor car and truck merchants.

GEORGE CAMPE,
President George Campe, Inc., Franklin Dealer in San Francisco.

George is back on Motor Row! This was the message carried in advertisements recently in San Francisco newspapers. The public may have asked and probably wondered just who George was. But the executives and dealers in San Francisco motor circles knew.

To them there was only one George, and that was George Campe, for many years active in Motor Car Dealers' Association activities, and until he retired from one of the leading distributorships some few years ago, one of the best known and best liked automobile merchants on the West Coast.

GEORGE CAMPE

To the public, as well as to the trade, the name George Campe stands for much. This fact was evidenced yesterday when the first announcement of the appointment of George Campe as Franklin distributor was made publicly.

To the motor car owning and buying public George Campe is a trade name which they have confidence in just as the simple George means honesty, square dealing and personality to the automobile fraternity.

Since August 25, 1918, George Campe has been identified with automotive affairs in San Francisco. On that date he was named Chevrolet distributor here and opened his showrooms on Van Ness Avenue near Jackson.

In 1920 Campe added the Daniels line of motor cars and began to launch in automobile merchandising on a larger scale. From that time until his retirement from the motor car business in July, 1926, he was a factor in automobile sales affairs and achieved nationwide recognition for the sales accomplishments of his organization.

And during this period, when Campe was building the reputation that achieved this wide acclaim, he was ably seconded by Gil Flint, then his general manager, and vice-president of this company. It is deemed fitting, in motor circles, that Gil Flint should again be associated with George Campe, Inc., and again in the position of vice-president and general manager. It is argued that this team will again make its mark in the automobile sales field and win again the wide following among the motor car owning public that was achieved in the past.

And the proof of this lies in the record.

Looking back over the years the record shows that in 1921 Campe relinquished the Chevrolet line and in 1922 was named distributor for the "Good Maxwell," following the retirement of Lou Rose, former distributor for this line of cars.

The record looks exceptionally good for Campe and Flint, as they fought the Maxwell up the sales ladder in northern California.

Then in 1924 Campe showed the first Chryslers at the San Francisco automobile show. And everyone knows the Chrysler sales success in this territory. Campe continued as one of the outstandingly successful Chrysler distributors until July, 1926, when he retired from the motor car business.

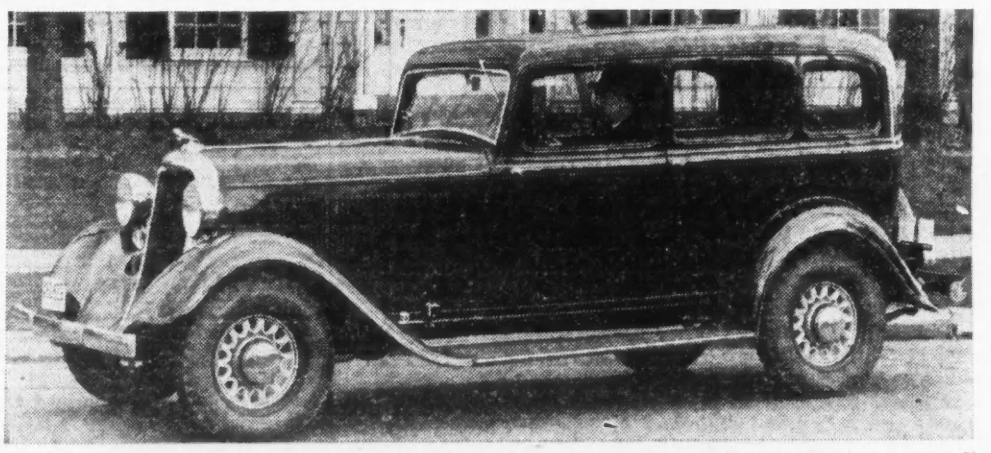
Now George is back again to his first love. Back again to Automobile Row and he has been warmly welcomed by his many friends both in and out of trade circles.

They say that George and Gil will again set the pace that will worry competition. And with the new Franklin Olympics as their merchandise it seems that they are headed for another success.

COMPLETE PRICES ON NEW DODGE 6

Prices of the complete new Dodge six line, with 115-inch wheelbase, have been announced as follows:

Coupe	$595
Coupe R. S.	640
Two-door sedan	630
Salon brougham	660
Four-door sedan	675
Convertible coupe	695



This is the first portrait of the new Dodge six, four-door sedan, with the 115-inch wheelbase, superseding the 111-inch line. This new and longer Dodge line embodies a newcomer in the two-door sedan, listing at $630. The engine and mechanical features do not differ essentially from the former line. This four-door sedan lists at $675.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday, Monday and Holidays, and Tuesday, When a Holiday Falls on Monday
AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION
350 Hudson St., New York, N. Y.
O. J. Elder, President. H. A. Tarantous, Vice-President. Alexander Johnston, Secretary.
Entered as second-class matter, August 27, 1925, at the post office at New York, N. Y., under the Act of March 3, 1879.
350 Hudson St., New York, N. Y. Telephone CA nal 6-1000

MEMBER A. B. C.

Mail subscriptions to CIRCULATION DEPARTMENT, 1926 Broadway.
Telephone TR afalgar 7-4500

Subscription Rates: One year, $12.00; two years, $20.00, for United States and Canada, also Mexico, Cuba and Panama
To Other Countries: One year, $15.00; two years, $26.00. Single copies, 5 cents.

SATURDAY, APRIL 22, 1933

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Mr. Micawber Speaks to Dealers

WE do not know whether the present generation has the time to peruse the works of a gentleman known to fame as Charles Dickens. If it has not we pity the younger generation. Re-reading for the hundredth time one of the masterpieces of that fecund genius, David Copperfield, we found to our surprise that the immortal Wilkins Micawber almost a hundred years ago had something to say to automobile dealers, even though his age knew them not.

It was at the time that Mr. Micawber was just emerging from one of his recurrent periods of financial woe. He had been haled to court on a judgment given against one of his frequent notes. Jail in that harsh age was the penalty, and Mr. Micawber was sailing exceedingly close to the wind.

Philosophizing on life, Wilkins Micawber gave vent to the following piece of advice to his young friend, David Copperfield: "Annual income twenty pounds, annual expense nineteen, nineteen-six. Result, happiness. Annual income twenty pounds and annual expenditure twenty pounds naught and six. Result misery."

Mr. Micawber thus pointed out that the only road to happiness in life is to live inside income. Many automobile dealers for lo, these many years could have taken this bit of sage advice and saved themselves the woe of learning by bitter experience.

One of the real troubles with the business of retailing automobiles has been the tendency of dealers to "buy business" by false allowances on used cars. Obviously enough a sufficient amount of this sort of thing meant "annual income twenty pounds, annual expenditure twenty pounds naught and six. Result, misery."

It does not make an iota of difference whether the fundamental cause of this trouble was to be found in the factory or in the dealer's office; the misery was there just the same, an actual condition—not a theory.

We believe that one of the results of the years of depression that we have been through has been to point Mr. Micawber's lesson for automobile retailers. We believe the used car situation today is on a sounder basis than it ever was before. Dealers have learned that bitter lesson that a dollar spent over income means misery.

The used car division of this industry today is more ready to take advantage of the developing situation than it would have been three years ago. The new car division has reduced stocks on hand to a new low record for this time of year. Dealers at last really appreciate how important a branch of their business is service. The entire retail organization of the industry is on a better footing and ready for the command "forward march."

Time to Attack

(Continued from Page 1)

at 100,000 units. Today it is practically certain that the total number of vehicles turned out this month will run well above 150,000 with every likelihood that the total will surpass the 155,000 built in April last year.

More than that, May production and sales will show an increase over those of April. It is quite likely that the peak in sales this year may be in June, although May is still the favorite for the honor.

The developments that will come in the next sixty days depend on how earnestly we grasp opportunity. To use a slangily expressive colloquialism "the game is in our hands." The American public has regained its courage; it is ready to spend in proportion to its income and in spite of the decrease in this last, we can still buy in sufficient volume to put business back on a going basis.

There is an ancient and time-honored maxim to the effect that "the Lord helps those who help themselves."

Never has there been a time when this old maxim was truer. The foundation has been laid and by our own efforts we can start the building of the superstructure.

Every man in the automotive industry has got to put forth his best efforts—the little extra push that he didn't think he had in him. Particularly is the present situation in the hands of our salesmen. Improving conditions have lessened a little the prospect's resistance to being sold. Salesmen will probably be surprised to find sales coming more easily, and that is precisely the time to attack with the ulmost vigor all along the line.

The March of the Twelves

In a recent bulletin Roy Faulkner of Pierce-Arrow called attention to the development of interest in twelve-cylinder cars. Pierce-Arrow has two lines of twelves and sales of these higher priced models are making heavy gains on a comparative basis, in a year that can scarcely be called "normal."

This statement interested us because it reproduces again the old battle between the cylinders. First we had single cylinder engines, then two-cylinder power plants. Then along came a four or so and the whole industry was building fours. Then we had the six and by degrees this became the standard for the industry, the fours being confined to the lowest price class.

And then when everything seemed settled we woke up to find the eight-cylinder engine with us and going strong. The eight today has even invaded the $500 and lower class.

Is the twelve going to do the same thing, not get into the $500 division, but become an important factor in the industry's production?

DETROIT CAR MAKERS TAX OUTPUT OF PARTS AND MATERIAL PLANTS

(Continued from Page 1)

in Automotive Daily News and at the Plymouth factory, to meet demand for its two new lines, standard and de luxe, recently described in this paper.

Hudson-Essex, Dodge and Pontiac have all increased their output within the past few days. Reo is busy on production of its new line of cars, embodying an automatic gear shifting device, described elsewhere in this issue.

The atmosphere in Detroit has changed radically almost overnight. There is an almost feverish activity at all the vehicle manufacturing plants which reminds the observer of the pre-depression days. From the newspaperman's point of view the recent situation is a pleasant change ,with fresh items of encouraging news breaking every day and revisions of estimates a matter of course. That the revival is on in Detroit, is obvious, the only question remaining is how long and how deep is it going to go. From the present vantage point, all that can be said is: "It looks good."

HARTFORD DEALERS CHOOSE ROHRER TO GUIDE ASSOCIATION

(Continued from Page 1)

Hine, the A. C. Hine Company, 189 Washington St., Oakland-Pontiac dealership, treasurer, and Arthur Fifoot, secretary.

Mr. Eddy was named a member of the board of governors for one year, and Major Skerrett and W. M. Turnbull, members for three years. Major Skerrett presided at the meeting, held in the Hotel Heublein.

Arthur A. Nielsen, John P. Nielsen & Sons Company, Chrysler dealership of 122 Washington St., was appointed chairman of a committee to prepare plans for an education campaign which will seek to induce the public to trade with legitimate dealers.

COMING EVENTS

APRIL

12-27—Milan, Italy. International Automobile and Nautical Show.

MAY

2- 5—Washington, D. C. United States Chamber of Commerce, meeting.
17-18—Tulsa, Okla. American Petroleum Institute, mid-year meeting, Mayo Hotel.

JUNE

16-17—Louisville, Ky. American Automobile Association, convention.
18-July 3—Bordeaux, France. Seventh Automobile, Nautical and Aeronautical Show.

TOLEDO EMPLOYMENT UP 20%; AUTOMOTIVE PLANTS SPEED OUTPUT

(Continued from Page 1)

partments are working seven days a week to meet increased demands for their products.

L. A. Miller, president and co-receiver of the Willys-Overland Company, announced that employment at the plant has been increased to 2,000 workers to carry forward production on 4,400 trucks for the International Harvester Company, and on Model 77 passenger cars for foreign distribution.

The Chevrolet Motor Ohio Company also reports revival in the automobile business at its plant here. At present there are 1,400 men at work on two nine-hour shifts.

Increased demand for safety glass in passenger cars has boosted employment at the Libbey-Owens-Ford Glass Company to 1,800 workmen in its two plants here.

The season for merchandise shipments by the all-water route was inaugurated here last week with the arrival of the Detroiter, a motorship of the National Motorship Corporation, with the first cargo from the Atlantic seaboard.

1932 REGISTRATIONS DECLINE 6.6 PER CENT.

(Continued from Page 1)

$17,550,422; and for miscellaneous other purposes, $35,506,810.

The total registrations and decline in registration from those of 1930 were as follows:

State	Total vehicles registered in 1932	Decline in registrations from 1930 Per cent.
Alabama	226,471	8.1
Arizona	94,947	10.1
Arkansas	136,503	24.5
California	1,971,616	3.5
Colorado	285,860	7.3
Connecticut	343,007	3.3
Delaware	52,851	4.3
Florida	286,091	11.5
Georgia	287,716	10.3
Idaho	95,325	14.6
Illinois	1,493,498	7.4
Indiana	796,815	7.6
Iowa	680,330	9.1
Kansas	504,367	9.8
Kentucky	293,265	10.1
Louisiana	242,748	7.7
Maine	171,757	8.8
Maryland	321,242	1.3
Massachusetts	801,909	4.6
Michigan	1,134,808	7.8
Minnesota	683,397	5.1
Mississippi	149,095	13.8
Missouri	717,460	4.7
Montana	109,129	14.2
Nebraska	375,716	9.7
Nevada	31,830	1.1
New Hampshire	106,431	4.6
New Jersey	857,830	1.4
New Mexico	76,767	5.6
New York	2,241,930	2.4
North Carolina	375,695	12.4
North Dakota	153,570	10.3
Ohio	1,589,524	7.1
Oklahoma	428,302	11.3
Oregon (1)	259,271	6.8
Pennsylvania	1,664,021	4.5
Rhode Island	133,408	3.2
South Carolina	177,020	13.1
South Dakota	161,933	16.1
Tennessee	298,713	14.8
Texas	1,191,324	8.2
Utah	99,851	8.3
Vermont	77,595	7.5
Virginia	370,587	2.3
Washington	446,001	(2) 6.0
West Virgina	227,888	10.0
Wisconsin	694,652	7.9
Wyoming	56,226	9.5
Dist. of Col.	160,567	7.5
Total	24,136,879	6.6

(1) For registration year ending June 30, 1932.

(2) Registrations in Washington increased 6.0 per cent.

MOVE TEXAS OFFICE

Youngstown, O., April 21.—The Dallas, Tex., district sales office of Republic Steel Corporation has been closed and removed to 2322 Gulf Building, Houston, Tex., N. J. Clarke, vice-president in charge of sales, announced recently. R. E. Lanier, district sales manager, and his present staff will be in charge of the new Houston office.

DeWITT OPERATED HOTELS

DeWITT OPERATED HOTELS ARE LOCATED IN THE HEART OF THEIR RESPECTIVE CITIES

In Cleveland it's
The HOLLENDEN
1050 ROOMS ALL WITH BATH
RADIO IN EVERY ROOM

In Chicago it's
The LA SALLE
1000 ROOMS. ALL WITH BATH
"IN THE HEART OF THE LOOP"

In Columbus it's
The NEIL HOUSE
650 ROOMS. ALL WITH BATH
RADIO IN EVERY ROOM

In Akron it's
The MAYFLOWER
450 ROOMS. ALL WITH BATH
RADIO IN EVERY ROOM

feature: UNUSUALLY COMFORTABLE ROOMS. THE FINEST OF FOODS AND RATES STARTING AT $2.50 SINGLE. $3.50 DOUBLE

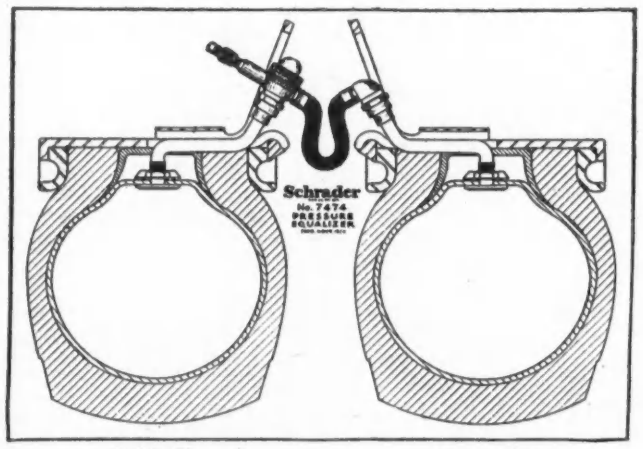
Production—Engineering—Factory

Edited by Herbert Chase

DEVICE EQUALIZES PRESSURE IN DUAL TIRES

A device designed to overcome a serious dual tire problem—namely, unbalanced pressures in pairs of tires—is being offered by A. Schrader's Sons, Brooklyn, N. Y. This device is automatic in its control of the flow of air from one tire to the other.

Generally speaking, the inner tire pressure is found to be higher, due sometimes to excessive heat from brake drum, lack of ventilation, extra friction on high crowned roads or improper inflation. The result is excess wear on one tire because it takes more than its share of the load. The problem is serious, particularly for the increasing number of trailer and semi-trailer types of units, where balanced pressures are important in obtaining efficiency.



Outer Tire Inner Tire

The thought of using a pressure equalizer for dual tires is by no means new. In its early development, a device was used that would allow for the free passage of air from one tire to the other, but in this construction no provision was made for a safety valve that would retain the air pressure in one tire should the other go flat. The development of the Schrader pressure equalizer, incorporating an automatic safety valve, overcomes this objection.

This equalizer offers these essential features. First, it enables dual tires on the same unit to automatically operate under balanced pressures at all pressures above a pre-set pressure; second, it provides the added security of an automatic safety valve that holds a preset pressure in one tire notwithstanding a blowout or puncture in the other tire; third, both tires may be quickly inflated and gauged through a single valve mouth equipped with the Dublchek cap; fourth, a flexible armored hose and swivel connections make the application of the equalizer easy.

The results of extended tests of the equalizer on large bus fleet installations in various parts of the country is said to indicate that an increase in tire mileage of 20 per cent. or more is possible by use of this device.

"HOUSE OF MAGIC" AT EXPOSITION

Progress in science and industry during the last century, as it will be shown at A Century of Progress at Chicago, will provide scores of surprices for exposition visitors. To those who visited the World's Columbian Exposition in 1893, as well as to the younger generation, the story to be told in the "House of Magic" of the General Electric Company will be one of interest, giving a picture of the tremendous strides that have taken place in electrical development.

Only forty years ago a tower of light, studded with almost primitive types of incandescent lamps and crowned with a ten-foot reproduction of a "bulb," was heralded in the "Electrical World" as "surmounting all other exhibits . . . and will probably be the last to be obliterated from the tables of the visitor's memory, upon which so many brilliant scenes will have been inscribed during his visit to this, the greatest and most brilliant of electrical exhibits the world has ever seen." It was truly a tower of magic.

This summer, in a little auditorium to be known as the "House of Magic," seating approximately 300 persons, General Electric will present wonders of advanced science as striking in their novelty as were those now obsolete electric machines of less than a half a century ago. Brilliant lighting effects, representative of the newest developments in theatrical illumination, will be a show in themselves. A wave of the scientist-magician wand will open the exits. The pushing of a tiny button will bring into sight, in the approved fashion, of gilt-and-plush movie palaces, a tiny Thyratron organ no bigger than a top piano but capable of producing the sound volume of the mightiest pipe organ.

The auditorium itself will be built to take advantage of scientific and engineering achievements of recent years. It will be completely air-conditioned—cool on the hottest days and warmed by a GE oil furnace in cool weather. The lighting effects of the auditorium and the demonstration will be produced by combinations of gaseous and incandescent lamps. The demonstration platform, a circular turn-table, will revolve at the push of a button,

(Continued on Page 8)

WHAT CAN WE DO WITH EXISTING LAWS?

By A. J. SCAIFE,
Consulting Field Engineer, White Company.

In order to answer this question, it will be necessary to make an analysis of existing laws in the several states. The conditions existing between the different states as to conflicting laws is analogous to a condition wherein we would have different weights and measures for each state. It will be unnecessary for me to dwell on the chaotic condition this would cause. Motor transport, especially in interstate operation, is in this condition when a complete analysis of existing laws is revealed.

We are all familiar with the growth of transportation of all types. The horse and wagon is the most familiar as it was the most flexible and the least expensive to own and operate. The motor truck is the outgrowth of this form of transport—"the horse and wagon of another day." The limitations, however, of the horse, are the amount of weight that the horse or horses could start or drag through heavy going or up certain grades. The motor truck is not limited to the gross weight that it can start in high gear, with the use of multi-range transmissions, it is necessary to give first consideration only, to the ability required to operate the truck on the level or up a 1½ per cent. or 2 per cent. grade in high gear after the mass is in motion.

With this new type of truck transport (about 18 years old) we used a trailer, then two trailers, the tractor and semi-trailer, then semi and trailer, made possible by greater power plants and multi-range transmissions, with pneumatic tires. This very rapid growth in a short time (1915 to 1929) multiplied twenty-four times, allowed certain abuses to creep into the industry. The desire to carry greater loads for longer distances on equipment not designed for this purpose helped to bring about the condition that exists today in Texas, but instead of correcting the abuse, all motor transport was penalized through the very able assistance of the railroads and their employees.

Limitations were placed on axle loads, and especially in California, which produced the six wheel attachment. This state in 1924 made provision for eight wheels, having four axles, allowing a certain weight per axle provided they were spaced eight feet between the second and third axle. This was bootlegged by designating the rear axle as a first axle, and by the use of a dummy, or auxiliary axle, they were allowed to increase the load carrying capacity of the truck. This led to the development of a real six-wheel unit, was given recognition in several states from a load carrying standpoint—also six wheel semi, and six wheen trailer.

In order to get at the facts, it will be well to study each type of vehicle operating today.

Four-Wheel and Six-Wheel Trucks

All states provide for the opera-

(Continued on Page 6)

ADVERTISING CLOCK

The Sales Equipment Company, Detroit, Mich., is offering to the automotive dealer a commercial size clock at an exceptionally low price, which has a definite advertising value, in that it ties up with other automotive dealer advertising.

The dimensions of the clock are 15¼ inches square, with a 14-inch dial. The clock numerals are printed in black against a white background, and in addition has imprinted on the dial, the name of the car being represented, the emblem, or the words "SALES—SERVICE." It is designed to operate on 50 or 60-cycle A C 80-135 volt current, and is fully guaranteed against defective materials and workmanship for one year by the manufacturer.

RESEARCH THE ELIXIR OF LIFE FOR INDUSTRY

In the current issue of the Executives Service Bulletin, published by the Metropolitan Life Insurance Company, there is a very interesting article by J. E. Hayes, president of the New Jersey Zinc Company, on the research and development work carried on by his organization. Mr. Hayes says strikingly that the company which is to continue in the business of supplying raw materials for its customers to work must keep its product right. "The products," he remarks, "must be right every day, and the right product today is not always the right product tomorrow."

He continues: " It does not seem to make any difference whether pigments or metals are concerned; there is an ever-present necessity for reviewing contemplated activities in research, promotion and sales work. The problems are of great variety. Not so long ago, for instance, the pigment zinc sulphide sold for about a dollar a pound and it was not nearly so good a pigment as it is today when we can buy seven or eight pounds for a dollar. But there was no great call for zinc sulphide until the cost of labor changed painting practice and property owners cut work on new jobs from three coats to two and repaint jobs from two coats to one. With the first indications of this change, the Pigment Research Division concentrated on the problem of producing a zinc sulphide which would embody everything in the way of color and brightness that the paint industry, a big customer of our pigments, would need for their new products and would give far greater opacity to paint than any pigment previously available. Today many of the largest and most progressive paint companies in the country are using this new zinc sulphide to modernize paint finishes.

"Another research job involving pigments has just opened the paper industry to us. Companies spending a great deal of money annually on postage have found that their mailing bill may be cut down appreciably by using a thinner paper. That must be accomplished, however, without sacrificing opacity and destroying appearance and advertising value of the printed matter. For the last nine months we have been deep in a research program for incorporating our pigment in various grades of paper and orders are now coming in.

These are two instances among many. I might go on to tell how our work has helped the rubber compounding industry to overcome many of its problems, or how, in the metal field, we have learned the way to alloy zinc metal to give a rolled metal which can be fabricated for a great many things where other metals formerly were used. And there is another story of another rolled metal alloy, containing more than 95 per cent. zinc, which will bend both with and across the grain without cracking, thus overcoming a drawback which formerly kept zinc out of a number of applications for which it was otherwise ideally suited. But you will be more interested in the development of the die-casting industry, both for the reason that many articles of great familiarity to you are now being die cast, and because die casting so well illustrates an opportunity recognized in embryo during the last period of poor business and developed to provide a gratifying and unusually stable outlet during these recent few years.

Because of the obvious economies to be gained through reproducing complicated parts in rapid succession by casting molten metal into "permanent" dies under pressure, industry had done a certain amount of experimenting with this process prior to 1920. Tin and lead were the base metals for die casting in these early years of the industry before alloys of zinc were tried. The much greater strength developed by these zinc alloys seemed to make zinc a promising candidate for this new method of metal product manufacture. The alloys proved totally unsatisfactory for anything other than decorative work, however, and the industry seemed to need help in producing an alloy suitable to their needs. Here was a most promising outlet for zinc, if the manufacturers of the raw material, zinc, would develop suitable alloys—which we decided to attempt.

And then we found that, to give satisfactory performance, die-casting alloys demanded a very pure quality of zinc. The development of a pyrometallurgical process to furnish this high purity zinc on a commercial scale proved to be one of the great developments of the zinc industry. Vertical furnaces, operating in a manner approximating that of a blast furnace, were built, and a metallurgical control devised which produced commercially a zinc of 99.99+ per cent. purity,

(Continued on Page 7)

PERTINENT

POKES and PARRIES

By HERBERT CHASE, Engineering Editor — BY READERS

Converting Convertibles

There can be little doubt but that convertible bodies are very popular with some classes of purchasers, despite the difficulty encountered in lowering the top and raising it again when a cover is desired. Many purchasers are willing to pay a considerable premium for this type of body, and it is our belief that many more would do so if the difference in cost between this type and a permanently-closed type were less than at present. We are quite certain that this would be the case if at the same time the conversion could be made much more quickly and easily than at present, perhaps, by nothing more difficult than turning a crank.

It appears almost beyond question that if a thoroughly practical and really easily convertible body were available at moderate cost, say not to exceed $50 to $75 more than for an ordinary closed type, in the case of low-priced cars, it would have a very wide sale. Considerable progress has been made in this direction in England, but body designers here are inclined to question whether types acceptable there would be well regarded here.

There are difficulties, of course, in making a collapsible or convertible top that is free from rattles, weather tight and smart in appearance, as well as easy to raise and lower, but the problem does not appear to be so difficult that a practical solution cannot be found. Any experienced body designers among our readers who may care to comment on this subject will find this column open. We would also appreciate comments from dealers who can express the views of customers on this subject.

PASSENGER CAR EQUIPMENT AND ACCESSORIES

NAME AND MODEL	Speedometer	Clock	Fuel Gauge	Lock	Spark Plugs	Battery	Heat Indicator	Cig. Lighter	Hardware Make	Non-Shat. Glass: Windshield	Non-Shat. Glass: Throughout	Horns Make & No.	Adjustable Seats	Trunk Rack	Trunk	Ventilating Systems	Wired for Radio	Spring Covers	Shock Absorbers: Make	Shock Absorbers: One or Two Way	Shock Absorbers: Ride Control	Wheels	
Auburn 8-101	Ste	$	K-S	Ele	Cha	USL	Ste	Cas	Dev	LOF	—	Kla	Yes	C	$	—	$	And $	Del	2	No	MW	Wo
Auburn 8-105	Ste	$	K-S	Ele	Cha	USL	Ste	Cas	Dev	LOF	—	Kla	Yes	Yes	$	—	$	And	Del	2	No	MW	Wo
Auburn 12-161	Ste	Borg	K-S	Ele	Cha	USL	Ste	Cas	Dev	LOF	—	Kla	Yes	Yes	$	—	$	And $	Hou	2	Aut	MW	Wo
Auburn 12-165	Ste	Borg	K-S	Ele	Cha	USL	Ste	Cas	Dev	LOF	—	Kla	Yes	Yes	$	—	$	And	Hou	2	Aut	MW	Wo
Austin	NE	$	K-S	Aut-L	Cha	USL	$	$	—	$	—	EA-1	No	No	$	—	No	No	Own	1	No	—	Di
Buick 33-50	AC	$	AC	Oak	AC	DR	AC	Cas	Tern	LOF	—	Kla-2	Yes	No	¶¶	Fish	Yes	And $	Del	1	Iner	KH	¶
Buick 33-60	AC	$	AC	Oak	AC	DR	AC	Cas	Tern	LOF	—	Kla-2	Yes	No	¶¶	Fish	Yes	And	Del	2	Iner	KH	¶
Buick 33-80	AC	$	AC	Oak	AC	DR	AC	Cas	Tern	LOF	—	Kla-2	Yes	No	¶¶	Fish	Yes	And	Del	2	Iner	KH	¶
Buick 33-90	AC	$	AC	Oak	AC	DR	AC	Cas	Tern	LOF	—	Kla-2	Yes	No	¶¶	Fish	Yes	And	Del	2	Iner	KH	¶
Cadillac V-8	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	LOF	LOF	Kla	—	—	—	Fish	—	And	Del	2	Iner	KH	Wi
Cadillac V-12	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	LOF	LOF	Kla	—	—	—	Fish	—	And	Del	2	Iner	KH	Wi
Cadillac V-16	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	LOF	LOF	Kla	—	—	—	Fish	—	And	Del	2	Iner	KH	Wi
Chevrolet Master 6	AC	$	AC	DR	AC	DR	AC	$	Tern	LOF	—	Kla	Yes	$	$	Fish	Yes	$	Del	1	No	KH	Wi
Chevrolet Standard 6	—	—	—	—	AC	DR	—	—	Tern	Yes	$	—	Yes	—	—	Fish	—	—	Del	1	No	—	Wi
Chrysler 6	AC	$	Mot-M	DR	AC	Wil	Mot-M	Yes	—	Pitts	$	Kla	Yes	CS	CS	—	—	And $	Del	1	No	MW	Wi
Chrysler Royal 8	AC	$	Mot-M	DR	AC	Wil	Mot-M	Yes	—	Pitts	$	Kla	Yes	CS	CS	—	—	And	Del	1	No	MW	Wi
Chrysler Imperial 8	AC	$	Mot-M	DR	AC	Wil	Mot-M	Yes	—	Pitts	$	Kla	Yes	CS	CS	—	—	And	Del	2	No	MW	Wi
Chrysler Imp. Cust. 8	AC	Wal	Mot-M	DR	AC	Wil	Mot-M	Cas	—	Pitts	Yes	Kla	Yes	$	$	—	—	And	Hou	2	Man	MW	Wi
Continental Beacon	AC	$	K-S	Aut-L	AC	USL	Mot-M	$	—	**	$	Sche	—	—	—	—	—	—	—	—	—	—	Wi
Continental Flyer	AC	$	K-S	Aut-L	AC	USL	Mot-M	$	—	**	$	Sche	—	—	—	—	—	—	—	—	—	—	Wi
Continental Ace	Ste	$	Mot-M	Aut-L	AC	Nat	Mot-M	$	—	**	$	Sche	—	—	—	—	—	—	Hou	2	No	—	Wi
De Soto Six	AC	$	Mot-M	DR	AC	Wil	Mot-M	Cas	—	Pitts	$	Kla-2	Yes	$	$	—	Yes	$	Del	1	No	MW	Wo
Dodge 6	AC	$	Mot-M	DR	AC	Wil	Mot-M	Cas	—	Pitts	$	Kla	Yes	—	—	—	Yes	And	Del	1	No	MW	Wo
Dodge 8	AC	$	Mot-M	DR	AC	Wil	Mot-M	Cas	—	Pitts	$	Kla	Yes	—	—	—	Yes	And	Del	2	No	MW	Wo
Essex Terraplane 6	Wal	$	Mot-M	Ele	Cha	Nat	K-S	$	Dura	Pitts	$	EA	Yes	No	No	Own	Yes	No	Mon	2	No	MW	Wi
Essex Terraplane 8	Wal	$	Mot-M	Ele	Cha	Nat	K-S	$	Dura	Pitts	$	EA	Yes	$	$	Own	Yes	No	Mon	2	No	MW	Wi
Ford 4 Model 46	Var	$	K-S	Hurd	Cha	Own	$	$	Own	**	—	Var	Yes	$	—	—	Yes	No	Hou	2	Aut	Own	Wi
Ford V-8 Model 40	Var	$	K-S	Hurd	Cha	Var	$	$	Own	**	—	Var	Yes	$	—	—	Yes	No	Hou	2	Aut	Own	Wi
Franklin Olympic 6	Ste	None	K-S	Yale	Cha	Wil	None	Cas	Dura	LOF	—	Kla	Yes	No	No	—	No	No	Del	2	No	MW	Wi
Franklin 6	NE	Borg	K-S	Yale	Cha	Nat	None	Cas	Dura	LOF	LOF	Kla	Yes	No	No	—	No	No	Del	2	Man	MW	Wo
Franklin 12	NE	Borg	K-S	Yale	Cha	Wil	None	Cas	Dura	LOF	LOF	Kla	Yes	No	No	—	No	And	Del	2	Man	MW	Wo
Graham Standard 6	AC	$	K-S	DR	Cha	Wil	K-S	$	Dura	LOF	—	Kla	Yes	—	—	$	No	No	Del	1	No	MW	¶
Graham Standard 8	AC	$	K-S	DR	Cha	Wil	K-S	$	Dura	LOF	—	Kla	Yes	—	—	$	No	No	Del	1	No	MW	¶
Graham Custom 8	AC	$	K-S	DR	Cha	Wil	K-S	$	Dura	LOF	LOF	Kla	Yes	—	—	$	No	No	Del	1	No	MW	¶
Hudson Super 6	Ste	$	Mot-M	Ele	Cha	Ex	Mot-M	$	Dura	Pitts	$	EA	Yes	$	$	Dole	Yes	No	Mon	2	No	MW	Wi
Hudson 8	Ste	$	Mot-M	Ele	Cha	Ex	Mot-M	$	Dura	$	—	EA	Yes	$	$	Own	—	No	Gab	2	Man	MW	Wi
Hupmobile 321	Ste	$	Ste	Ele	Cha	Wil	Ste	$	Dev	Pitts $	$	Spa	—	No	No	—	Yes	None	Gab	2	Aut	MW	¶
Hupmobile 322	Ste	$	Ste	Ele	Cha	Wil	Ste	None	Dev	Pitts	$	Spa	—	No	No	—	Yes	None	Gab	2	Aut	MW	¶
Hupmobile 326	Ste	$	Ste	Ele	Cha	Wil	Ste	Cas	Dev	Pitts	Pitts	Spa	—	No	No	—	Yes	B&S	Gab	2	Aut	MW	¶
La Salle V-8	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	LOF	LOF	Kla-2	—	—	—	Fish	—	And	Del	2	Iner	KH	Wi
Lincoln V-12	Wal	Wal	K-S	Oak	Cha	Ex	K-S	Cas	—	**	**	Spa-2	Yes	Own	Yes	No	Yes	And	Hou	2	Aut	KH	SS
Lincoln V-12	Wal	Wal	K-S	Oak	Cha	Ex	K-S	Cas	—	**	**	Spa-2	Yes	Own	Yes	No	Yes	And	Hou	2	Aut	KH	SS
Marmon 16	AC	Jag	AC	DR	Cha	Ex	AC	Cas	Tern	Pitts	LOF	Spa-2	Yes	Yes	—	—	No	And	Hou	2	*	MW	Wi
Nash 6	Ste	$	K-S	Aut-L	AC	USL	K-S	$	Var	Pitts	$	Spa	—	—	—	—	Yes	Yes $	Gab	2	Aut	MW	¶
Nash Standard 8	Ste	$	K-S	Aut-L	AC	USL	K-S	$	Var	Pitts	$	Spa	—	—	—	—	Yes	Yes $	Gab	2	Aut	MW	¶
Nash Special 8	Ste	$	K-S	Oak	AC	USL	K-S	$	Var	Pitts	$	Spa	—	CS	—	—	Yes	Yes $	Del	1	Man	MW	¶
Nash Ad. Twin Ign. 8	Ste	$	K-S	DR	AC	USL	Ste	$	Var	Pitts	$	Spa	—	CS	—	—	Yes	Yes $	Del	2	Man	MW	¶
Nash Am. Twin Ign. 8	Ste	Borg	K-S	DR	AC	Ex	Ste	Cas	Var	Pitts	$	Spa	—	CS	—	—	Yes	Yes $	Del	2	Man	MW	¶
Oldsmobile 6	AC	None	AC	DR	AC	DR	AC	None	Tern	LOF	—	Kla-1	Yes	No	—	Fish	Yes	And	Del	2	No	K-H	St
Oldsmobile 8	AC	None	AC	DR	AC	DR	AC	None	Tern	LOF	—	Kla-1	Yes	No	—	Fish	Yes	And	Del	2	No	K-H	St
Paskard 8	NE	2	Mot-M	NE	AC	Pre	K-S	Cas	—	LOF	LOF	Spa	Yes	—	—	Own	Yes	Own	Del	2	Man	MW	Wi
Packard Super 8	NE	2	Mot-M	NE	AC	Pre	K-S	Cas	—	LOF	LOF	Spa	Yes	—	—	Own	Yes	Own	Del	2	Man	MW	Wi
Packard 12	Wal	—	Mot-M	NE	AC	Pre	K-S	Cas	—	LOF	LOF	Spa	Yes	—	—	Own	Yes	Own	Del	2	Man	MW	Wi
Pierce-Arrow 836	NE	Borg	K-S	Oak	Cha	Wil	K-S	Cas	Dura	Pitts	Pitts	EA	Yes	Yes	—	—	Yes	And	Del	2	No	KH	Wo
Pierce-Arrow 1236	NE	Borg	K-S	Oak	Cha	Wil	K-S	Cas	Dura	Pitts	Pitts	EA	Yes	Yes	—	—	Yes	And	Del	2	No	KH	Wi
Pierce-Arrow 1242-7	NE	Borg	K-S	Oak	Cha	Wil	K-S	Cas	Dura	Pitts	Pitts	Kla	Yes	Yes	—	—	Yes	And	Del	2	Yes	KH	Wi
Plymouth 6	AC	—	Mot-M	DR	AC	Wil	—	—	—	Pitts	—	Kla	Yes	—	—	—	Yes	No	Del	1	No	Bu	Wi
Pontiac Straight 8	AC	None	AC	DR	AC	DR	AC	None	Tern	LOF	—	Kla	Yes	No	—	Fish	Yes	$	Del	1	No	KH	Wi
Reo Flying Cloud	—	No	K-S	DR	Cha	Wil	K-S	Cas	—	**	—	Kla	Yes	—	—	—	No	No	Del	2	No	MW	Wi
Reo Royale	—	No	K-S	DR	Cha	Wil	AC	Cas	—	**	—	Kla	Yes	—	—	—	Yes	And	Del	2	No	MW	Wi
Rockne Six Model 10	Ste	—	K-S	Aut-L	Cha	Wil	K-S	—	Han	**	—	Spa-1	—	$	—	—	Yes	And	Del	1	No	††	††
Studebaker 6	Ste	None	AC	DR	Cha	Wil	Ste	None	Var	**	**	Spa	Yes	R	—	—	Yes	And	Hou	2	Aut	Bu	SS
Studebaker Com. 8	Ste	None	AC	DR	Cha	Wil	Ste	None	Var	**	**	Spa	Yes	R	—	—	Yes	And	Hou	2	Aut	Bu	SS
Studebaker President 8	Ste	Borg	AC	DR	Cha	Wil	Ste	Var	Var	**	**	Spa	Yes	R	—	—	Yes	And	Hou	2	Aut	Bu	SS
Studebaker Spd. Pres. 8	Ste	Borg	AC	DR	Cha	Wil	Ste	Var	Var	**	**	Spa	Yes	S	—	—	Yes	And	Hou	2	Aut	Bu	SS
Stutz LAA	Ste	Wal	Ste	DR	Cha	Pre	Mot-M	Cas	Tern	Pitts	Pitts	Kla	—	—	—	—	—	No	Gab	2	Aut	MW	Wo
Stutz SV-16	Ste	Borg	Ste	Oak	Cha	Pre	Ste	—	Tern	Pitts	Pitts	Kla	—	—	—	—	—	No	Gab	2	Aut	MW	Wo
Stutz DV-32	Ste	Borg	Ste	Oak	Cha	Pre	Ste	—	Tern	Pitts	Pitts	Kla	—	—	—	—	—	No	Gab	2	Aut	MW	Wo
Willys 77	NE	$	Mot-M	Aut-L	Cha	USL	$	—	Var	$	—	Sch	—	No	No	—	No	No	Mon	1	No	KH	Di
Willys 99	NE	—	Mot-M	Aut-L	Cha	USL	Mot-M	No	Var	LOF	—	Sch	—	No	No	—	Yes	No	—	—	No	KH	Di

KEY TO SYMBOLS AND ABBREVIATIONS

Speedometer—Ste, Stewart-Warner Corp.; NE, Delco Appliance Corp.; AC, AC Spark Plug Company; Wal, Waltham Watch Company; Var, various makes.

Clock—Borg, G. W. Borg Corp.; Jag, Jager Watch Company; Wal, Waltham Watch Company.

Fuel Gauge—K-S, King-Seeley Corp.; AC, AC Spark Plug Company; Mot-M, Moto Meter Gauge and Equipment Corp.; Ste, Stewart-Warner Corp.

Lock—Ele, Electrolock-Mitchell Specialty Company; Aut-L, Electric Auto-Lite Corp.; Oak, Oakes Products Corp.; DR, Delco Remy Corp.; Hurd, Hurd Lock Company; Yale, Yale & Towne Mfg. Company; NE, Delco Appliance Corp.

Spark Plugs—Cha, Champion Spark Plug Company; AC, AC Spark Plug Company.

Battery—USL, USL Battery Corp.; DR, Delco Remy Corp.; Wil, Willard Storage Battery Company; Nat, National Lead Battery Company; Var, various makes; Ex, Electric Storage Battery Company; Pre, Prest-O-Lite Company.

Heat Indicator—Ste, Stewart Warner Corp.; AC, AC Spark Plug Company; Mot-M, Moto Meter Gauge and Equipment Corp.; K-S, King-Seeley Corp.

Cigar Lighter—Cas, Casco Products Corp.; Var, various makes; Cuno, Cuno Engineering Co.

Hardware Make—Dev, Deveraux-Keeler Brass Company; Tern, Ternstedt Mfg. Company; Dura, Dura Products Mfg. Company; Var, various makes; Han, Hancock.

Non-Shatterable Glass—
Windshields — LOF, Libbey-Owens-Ford; Pitts, Pittsburgh Plate Glass Corp. **Using both Libby-Owens-Ford and Pittsburgh.

Horns—Kla, Klaxon, Delco Remy Corp.; EA, EA Laboratories; Sch, Schwarze Electric Company; Spa, Sparton, Sparks Withington; Var, various makes.

Ventilating Systems—Fish, Fisher Body Corp.; Dole, Dole Valve Company.

Spring Covers—And, Andersen Mfg. Company; B&S, Briggs & Stratton.

Shock Absorbers—Del, Delco Products Corp.; Hou, Houde Engineering Corp.; Mon, Monroe Auto Equipment Company; Gab, Gabriel Company.

Ride Control—Aut, Automatic; Iner, Inertia; Man, Manual; *Marmon 16, manual rear, automatic front.

Wheels—MW, Motor Wheel Corp.; K-H, Kelsey-Hayes Wheel Corp.; Day, Dayton Wire Wheel Corp.; Bu, Budd Wheel Company; Wo, Wood; Wi, Wire; SS, Steel Spoke Artillery; St, Steel Spoke; Di, Disc. ††Rockne equipped with Kelsey-Hayes wire. Budd steel spoke optional at extra cost.

Symbols—C, coupe; CS, convertible sedan; $, extra equipment at additional cost; R, Regal models only; S, State models only; ¶Wire or wood wheels optional; ¶¶ Built-in trunk is standard on 5-pass. Victoria coupes on 50, 60 and 80 series and Club sedan on the 90 series.

DENY BLACK CHARGES

Toledo, O., April 21.—Charges made by Senator Black of Alabama in the United States Senate that employees of the Electric Auto-Lite Company, Logan Gear Company and Bingham Stamping Company have been threatened with dismissal if they refuse to oppose the thirty-hour-week bill now before the House of Representatives, have met with vigorous denials from officials of the companies here.

OIL MEETING

Minneapolis, Minn., April 21.—Seventy-five sales representatives of the Skelly Oil Corporation attended a general sales conference of the organization here at the Curtis Hotel.

What Can We Do With Existing Laws?

(Continued from Page 5)

tion of a four-wheel and six-wheel motor trucks (Strange as that may seem).

Length

33 feet in twenty-two states.
35 feet in ten states.
Not specified in four states.
30 feet in Iowa, Alabama, New Hampshire.
40 feet in Connecticut, Michigan, Wyoming.
50 feet in South Dakota.
36 feet in Maine.
34 feet in Oregon.
33 feet in Massachusetts.
28 feet in New Jersey.
26 feet 5 inches in Kenutcky.

Width

96 inches in thirty-nine states.
90 inches in North and South Carolina, Oklahoma.
96 and 102 inches in Connecticut and Massachusetts.
84 inches private, 96 inches for hire in Florida.
93 inches in Maryland.
96 and 100 inches in Colorado.
96 and 108 inches in Mississippi.
102 inches in Rhode Island.

Height

12 feet 6 inches in sixteen states.
Height not specified in nine states.
12 feet in eight states.
14 feet 6 inches in six states.
14 feet in Michigan, Utah, New Mexico.
13 feet in New York, Nebraska, Kansas.
16 feet 6 inches in California.
12 feet 2 inches in Delaware.
11 feet 6 inches in Kentucky.
11 feet in Oregon.

Truck Gross Weights

24,000 pounds in seven states.
20,000 pounds in seven states.
32,000 pounds in Connecticut, North Dakota, Rhode Island.
22,000 pounds in four states.
30,000 pounds in Massachusetts, New Jersey, Colorado.
26,000 pounds in Utah, Delaware, Pennsylvania.
25,000 pounds in Maryland, Nevada, South Carolina.
Not speficied in two states.
18,000 pounds in Kentucky, Maine—24,000 pounds special.
7,000 pounds in Texas and Louisiana (pay load).
36,000 pounds in New York.
30,800 pounds in District of Columbia.
16,000 pounds private, 24,000 pounds for hire in Florida.
28,000 pounds in Missouri, Kansas.
34,000 pounds in Oregon.

Axle Weights

18,000 pounds in ten states.
16,000 pounds in ten states.
Not specified in two states.
22,400 pounds in New York, Rhode Island.
20,000 pounds in Colorado, Maine (special permit).
18,500 pounds in Kansas, Washington.
17,500 pounds in Oregon, California.
15,000 pounds in New Hampshire, South Carolina.
24,640 pounds in District of Columbia.
19,000 pounds in Wisconsin.
17,600 pounds in Georgia.
17,200 pounds in New Jersey.
16,800 pounds in Montana.
14,820 pounds in Arkansas.
12,000 pounds in Mississippi.

Truck-Tractor-Trailer

Tractor and semi-trailer in thirteen states.

(Continued on Page 8)

RESEARCH THE ELIXIR OF LIFE FOR INDUSTRY

(Continued from Page 5)

now being marketed as Horse Head Special Zinc.

With the development of Horse Head Special Zinc, the results of the die-casting alloy research assumed a more practical aspect. But it was a long and arduous search; 300,000 die-cast test bars of over 2,000 different alloy combinations have been examined in our laboratories since the first work was begun. The numerous and varied properties that are demanded of these zinc die castings soon made it obvious that one alloy could not satisfy all demands. Today, the Zamak series of four alloys of Horse Head Special zinc-aluminum-copper-magnesium are being used by the die-casting industry. The Zamak alloys have been patented and are marketed under the Zamak trademark only by The New Jersey Zinc Company. Other alloy manufacturers and commercial die casters have been licensed, however, to make these alloys, using Horse Head Special Zinc.

These zinc alloys develop physical properties which compare very favorably with those of the new malleable irons and greatly exceed those of the other die-cast alloys. Because of their lower melting point they are easy to cast, and they do not attack the steel of the dies and the die-casting machine.

A fine market for the zinc alloys has been built up by the careful cooperation between the research, technical service, advertising and sales departments of The New Jersey Zinc Company. In the case of this development, the function of the technical service division is extremely interesting. Early in this work the necessity arose of discussing with design engineers and die casters the proper alloys to use on particular jobs, and the most efficient design of product for the service and appearance required. This obviously was not the function of a scientific investigator. We could not spare any of our research staff from the enormous task they had undertaken. Yet, clearly, it needed a technical representative with the ability to talk to die casters and designers about their problems in their own language and with the added advantage of a thorough metallurgical background and sound familiarity with the latest developments of our laboratories. A technical service group for metals was the answer.

At first these men found most of their work among the commercial die casters, showing them the importance of the discoveries already made by our research men, the prime importance of the prevention of alloy contamination, the benefits of the newer alloy specifications. As this work progressed, however, the commercial die casters asked our assistance in carrying this work to the ultimate users of die castings.

It was in this type of work with the automotive industry that the importance of electroplating for outdoor exposure first appeared. And it is in this instance that the interlocking function of the technical service group is most obvious, for their reports have guided much of the research policy. The research department has investigated many plating procedures and examined many plated specimens. From this work they have been able to recommend plating methods to commercial electroplaters, and specifications to the users of plated die castings. This information has been broadcast by many technical papers and articles in industrial journals, as well as by customer contact. A large amount of the credit for better quality finishes of this type undisputably can be claimed for this activity.

Rounding up all this work, the sales and advertising departments have co-operated closely with both the research and technical service departments in obtaining a widespread knowledge and recognition of these developments. The metallurgical information has been issued in technical form to die casters and industrial metallurgists, new uses and designs incorporating die castings are advertised in a more popular manner to attract the eyes of administrative executives, sales managers and design engineers. This work is carried on through our advertising in the industrial journals, direct-by-mail advertising and the placing of articles in the industrial journals.

The success of this work can be gauged only by the expansion of the die-casting industry. Whereas, in 1926 there were approximately 13,500 tons of high grade zinc used for die castings, there were approximately 36,000 tons consumed by that industry in 1929. While the consumption figures for 1932, when available, will be much below this latter figure, an estimate of the value of this work cannot be based solely on tonnage, under present conditions, but must consider the increased number of manufacturers using zinc die castings in their products and a greater variety of engineering applications in a growing number of fields.

Brake Lining Concern Develops New Polish

The Durwyllan Company of Paterson, N. J., makers of Triplewear and Alltraffic brake linings, announce a new line of wax polishes and cleaners in addition to their brake lining. This is a separate unit operating under the chemical division and the line consists of five items, pictured above: Triplelustre auto wax, liquid wax polish, cleaner, for automotive and household use, Tripleglow, a synthetic polish for cars, floors and furniture, and Napso, a liquid soap for dry cleaning. More items are to be announced at a later date.

PRINCIPLES OF SUCCESSFUL RETAIL STORE LOCATION STUDIED

(Continued from Page 3)

eight per cent. of the business of this central district was in general merchandise, and 19.5 per cent. in apparel, with 64.1 per cent. of the total dollar sales of the area accounted for by independent stores. More than three-fourths of the city's jewelry sales are here; more than one-half of both the general merchandise and apparel sales, and almost one-half of the furniture and household sales.

Controlling factors in determining the shopping limits of the various retail developments within an urban community, the report shows, are as (1) population, (2) transportation, (3) income, and (4) topography.

Following these broad lines of analysis the store location study presents an analysis of the store location structure of the entire metropolitan area of Baltimore, illustrating in detail the methods worked out which may be used for making similar studies of the retail trade distribution of other city areas.

Included in the report are land-value and rental maps used as indicators of community income classifications, a transportation map and numerous statistical tables giving a great variety of data as to total and per capita sales, number of independent and chain stores, and sales by principal trade lines in the various retail district of the city of Baltimore.

Ten Passenger Car Sales Leaders for March-Feb., 1933

REPORTS PUBLISHED AS THEY COME IN

All states in this table are appearing for the first time in this form

In this table: 30 states and the District of Columbia

MAR., 1933 States	Sales	FIRST		SECOND		THIRD		FOURTH		FIFTH		SIXTH		SEVENTH		EIGHTH		NINTH		TENTH	
Arizona	185	Chev	74	Ford	32	Pontiac	15	Dodge	14	Buick	13	Ply	12	Olds	9	Rockne	8	Essex	4	Willys	3
Arkansas	495	Chev	251	Ford	123	Ply	60	Dodge	21	Pontiac	14	Buick	9	Chrysler	4	Rockne	3	DS-Re	2	*	1
Conn.	1223	Chev	344	Ply	185	Ford	171	Pontiac	110	Buick	71	Dodge	70	Olds	43	Essex	34	De Soto	28	Chrysler	26
Delaware	265	Chev	99	Ford	61	Pontiac	25	Ply	21	B-O	12	Chrysler	9	E-Pa	5	DS-R-W	3	LS	2	*	1
Florida	1315	Chev	423	Ford	316	Ply	159	Austin	117	Pontiac	56	Dodge	51	Buick	39	Essex	29	Willys	22	Olds	17
Idaho	157	Chev	50	Ford	42	Ply	29	Dodge	10	Pontiac	8	Willys	6	E-O	4	B-N-Re	1				
Illinois	5053	Chev	1323	Ford	1091	Ply	744	Pontiac	338	Dodge	244	Olds	227	Buick	210	DS	128	Chrysler	114	Willys	85
Indiana	2677	Chev	880	Ford	542	Ply	412	Pontiac	160	Dodge	106	Olds	89	De Soto	73	Essex	70	Buick	62	Rockne	57
Kansas	635	Chev	246	Ford	135	Ply	84	Pontiac	40	Essex	19	Willys	18	Rockne	17	Buick	16	D-S	10	Olds	8
Maryl'd	1002	Chev	382	Ford	188	Ply	101	Pontiac	76	Dodge	38	Buick	35	Ch-O	29	Essex	23	Graham	20	De Soto	14
Mich.	3284	Chev	1013	Ford	990	Ply	268	Pontiac	235	Dodge	145	Olds	127	Essex	108	Buick	91	De Soto	44	Rockne	42
Minn.	1792	Chev	766	Ford	335	Ply	182	Pontiac	110	B-O	61	Dodge	47	Willys	29	R-S	28	Hup	27	Chrysler	26
Missouri	4111	Chev	1411	Ford	849	Ply	736	Pontiac	224	Dodge	202	Olds	93	Buick	87	De Soto	75	Chrysler	66	Rockne	64
Nebraska	789	Chev	315	Ford	187	Ply	101	Pontiac	57	Olds	24	B-D-W	16	Essex	11	G-R	9	Chrysler	7	De Soto	4
N. Hamp.	313	Chev	105	Ford	52	Ply	26	Pontiac	15	Buick	14	O-R	12	E-S	9	D-N	7	De Soto	4	Chrysler	3
N. J.	3428	Chev	1040	Ford	639	Pontiac	376	Ply	335	Buick	176	Dodge	132	Olds	130	Essex	70	Rockne	66	De Soto	56
N. York	10758	Chev	3250	Ford	1873	Ply	1209	Pontiac	871	Buick	605	Dodge	499	Olds	435	Chrysler	266	Stude	245	Essex	218
N. Caro.	907	Chev	383	Ford	196	Ply	117	Pontiac	51	Dodge	34	Austin	29	Essex	24	Chrysler	18	Buick	15	DS-O	7
N. Dak.	221	Chev	91	Ford	41	Ply	30	Pontiac	16	Buick	7	Dodge	6	Ch-O	5	DS-R	4	E-S-W	3	Nash	2
Ohio	3911	Chev	1272	Ply	692	Ford	613	Dodge	224	Pontiac	191	Buick	119	DS-O	109	Chrsyler	106	Rockne	78	Essex	68
Oregon	529	Chev	159	Ford	123	Ply	82	Dodge	36	Pontiac	24	Buick	17	Ch-E-N	13	Olds	10	DS-G	9	Stude	5
Penna.	6969	Chev	2191	Ford	1245	Ply	959	Pontiac	512	Dodge	376	Buick	283	Olds	267	Chrysler	189	Essex	147	De Soto	106
Rh. Isl.	546	Chev	155	Ford	100	Ply	76	Pontiac	49	Buick	36	Chrysler	22	De Soto	17	Stude	13	D-E	12	Olds	11
S. Car.	531	Chev	239	Ford	106	Ply	55	Austin	31	Buick	17	Pontiac	14	D-E	13	Olds	10	Chrysler	8	Willys	6
S. Dakota	222	Chev	90	Ford	39	Ply	25	Pontiac	11	Rockne	9	Dodge	7	B-Ch-O	6	E-W	5	Stude	4	Graham	3
Utah	304	Chev	113	Ford	52	Ply	45	Buick	16	Pontiac	12	Essex	10	Olds	9	Ch-G	8	Rockne	7	De Soto	6
Vermont	148	Chev	50	Ford	27	Ply	22	Pontiac	12	Essex	8	Dodge	7	Buick	5	Olds	4	Ch-Ds-G-Pa-R2		*	1
Virginia	1343	Chev	503	Ford	315	Ply	150	Pontiac	97	Dodge	60	Buick	37	Essex	34	Olds	29	Chrysler	17	Hup	14
W. Vir.	550	Chev	192	Ford	116	Ply	75	Dodge	38	Pontiac	27	Olds	15	Essex	14	Chrysler	12	Buick	11	Rockne	10
Wis.	1464	Chev	438	Ford	290	Ply	186	Pontiac	104	Dodge	83	Olds	50	Buick	48	Rockne	44	Essex	40	Nash	32
D. Col.	1051	Chev	296	Ford	282	Ply	82	Pontiac	77	Dodge	56	Buick	48	Olds	28	Chrysler	25	Essex	21	Graham	16

FEB., 1933 States	Sales	FIRST		SECOND		THIRD		FOURTH		FIFTH		SIXTH		SEVENTH		EIGHTH		NINTH		TENTH	
Arizona	158	Chev	67	Ford	24	Pontiac	15	Buick	10	O-P	7	D-W	6	Rockne	5	Chrysler	4	DS-E	3	Stude	1
Arkansas	844	Chev	437	Ford	202	Ply	98	Dodge	47	Pontiac	21	Buick	10	Ch-DS	5	O-R	4	Nash	3	S-W	1
Conn.	975	Chev	334	Ply	142	Pontiac	95	Ford	84	Buick	64	Dodge	54	Olds	27	Chrysler	26	Essex	24	DS-Pa	16
Delaware	219	Chev	95	Ford	39	Ply	20	Pontiac	17	B-O	9	Essex	6	Ch-Ds-R	4	Cadillac	3	N-W	2	*	1
Florida	1548	Chev	560	Ford	343	Ply	183	Austin	120	Pontiac	73	Dodge	52	Buick	48	Ch-W	28	Essex	27	Olds	14
Idaho	94	Chev	41	Ford	16	Ply	13	Dodge	7	N-R	3	Buick	2	*	1						
Illinois	3801	Chev	1121	Ford	641	Ply	524	Pontiac	270	Buick	182	Dodge	180	Olds	166	De Soto	112	Stude	85	Chrysler	69
Indiana	1474	Chev	481	Ford	298	Ply	213	Pontiac	69	Dodge	65	De Soto	56	Willys	46	Olds	44	Essex	43	Rockne	35
Kansas	632	Chev	270	Ford	111	Ply	87	Pontiac	34	Buick	25	Essex	20	Dodge	19	Olds	13	Rockne	10	Chrysler	8
Maryl'd	1198	Chev	488	Ford	166	Ply	147	Pontiac	84	Buick	54	Dodge	36	Olds	35	Chrysler	30	Rockne	23	Stude	21
Mich.	4063	Chev	1387	Ford	745	Pontiac	361	Ply	286	Dodge	243	Olds	240	Buick	156	Essex	142	Rockne	86	Chrysler	65
Minn.	1107	Chev	504	Ford	149	Ply	98	Pontiac	74	Buick	38	Olds	36	Stude	31	Chrysler	30	Willys	24	Dodge	21
Missouri	3941	Chev	1531	Ply	692	Ford	519	Pontiac	227	Dodge	180	Buick	123	Olds	97	De Soto	85	Essex	66	Chrysler	65
Nebraska	385	Chev	141	Ford	89	Ply	43	Pontiac	26	B-D	13	Olds	12	Willys	9	Stude	7	Ch-R	6	N-Pa	5
N. Hamp.	272	Chev	106	Ford	44	Ply	33	Pontiac	15	Rockne	13	D-O	10	B-E-S	8	Nash	4	DS-G	3	Pa-Re	2
N. Jersey	3192	Chev	1059	Ford	366	Ply	359	Pontiac	354	Buick	207	Olds	137	Dodge	120	Chrysler	90	Stude	67	Rockne	65
N. York	9124	Chev	3007	Ply	1004	Ford	968	Pontiac	795	Buick	620	Dodge	500	Olds	396	Chrysler	252	Essex	206	Stude	203
N. Caro.	1099	Chev	478	Ford	253	Ply	121	Pontiac	58	Buick	31	Dodge	28	Chrysler	24	Austin	21	Essex	15	Olds	14
N. Dak.	112	Chev	46	Ford	27	Ply	10	Pontiac	9	Buick	7	Olds	4	D-H	2	*	1				
Ohio	4527	Chev	1586	Ford	723	Ply	595	Pontiac	282	Dodge	269	Buick	154	Olds	143	Chrysler	96	De Soto	93	Rockne	91
Oregon	367	Chev	111	Ford	73	Ply	60	Dodge	25	Pontiac	20	Stude	14	Nash	13	Chrysler	12	Buick	10	Willys	6
Penna.	5483	Chev	1869	Ford	693	Ply	674	Pontiac	411	Dodge	302	Buick	296	Olds	203	Chrysler	179	Essex	150	De Soto	98
Rh. Isl.	489	Chev	198	Ply	53	Pontiac	45	Ford	42	Buick	36	De Soto	25	Dodge	10	Nash	9	Rockne	8	Ch-S	7
S. Car.	418	Chev	181	Ford	91	Ply	48	D-Po	18	Austin	14	B-E	10	Chrysler	6	Willys	5	Nash	4	DS-R	3
S. Dakota	234	Chev	91	Ford	43	Ply	24	Dodge	19	Pontiac	18	Rockne	11	Buick	8	Stude	5	Ch-O	4	Essex	2
Utah	147	Chev	66	Ply	28	Ford	24	B-D	5	Pontiac	4	E-O	3	Stude	2	*	1				
Vermont	130	Chev	50	Ford	18	Ply	14	Pontiac	11	Olds	8	Buick	7	Essex	6	Ch-R	3	D-G-Re	2	*	1
Virginia	1139	Chev	491	Ford	200	Ply	123	Pontiac	83	Dodge	56	Essex	27	Buick	26	Chrysler	22	De Soto	20	Olds	19
W. Vir.	610	Chev	205	Ford	136	Ply	97	Dodge	42	Pontiac	29	Chrysler	18	Buick	14	O-R	11	De Soto	9	Nash	8
Wis.	1004	Chev	374	Ford	123	Ply	114	Pontiac	86	Dodge	50	Buick	39	Olds	35	Essex	32	Nash	29	Rockne	26
D. Col.	949	Chev	321	Ford	165	Pontiac	105	Ply	79	Olds	45	Chrysler	34	Dodge	33	Buick	32	Essex	23	Rockne	19

KEY TO ABBREVIATIONS AND SYMBOLS

A—Auburn, Au—Austin, B—Buick, C—Cadillac, Co—Continental, Ch—Chrysler, DS—De Soto, D—Dodge, E—Essex, F—Franklin, G—Graham, H—Hupmobile, Hu—Hudson, LS—La Salle, L—Lincoln, N—Nash, O—Oldsmobile, Pa—Packard, PA—Pierce-Arrow, P—Plymouth, Po—Pontiac, Re—Reo, R—Rockne, S—Studebaker, WK—Willys-Knight, W—Willys. *—Cars in this position registered as shown.

What Can We Do With Existing Laws?

(Continued from Page 6)

Truck and one trailer in thirty-two states.
Semi-trailer and one trailer in twenty-eight states.
Not specified in ten states.
Tractor and two trailers in Minnesota.
Truck and two trailers in Michigan, Minnesota, New York.

Truck, Trailer-Semi and Trailer

85 feet in nine states.
Not specified in six states.
60 feet in six states.
50 feet in five states.
45 feet in four states.
40 feet in four states.
35 feet in four states.
65 feet in New York, Arkansas.
55 feet in Louisiana, North Carolina.
33 feet in District of Columbia, Mississippi.
70 feet in Pennsylvania.
63 feet in Minnesota.
62 feet in Maine.

Truck Train Combination Length

2 full trailers not permitted in Alabama and Kentucky.
85 feet in fifteen states.
60 feet in eight states.
50 feet in five states.
45 feet in five states.
40 feet in five states.

Train Weights

6 (L plus 40) in New Mexico, Oregon.
24,000 plus Lx500 in Wyonming.
24,000 plus Lx450 in Iowa.
24,000 plus Lx600 in Indiana.
25,000 plus Lx650 in Arkansas (22,620 axle limit).
H 10-670, H 15-1000, H 20-1330 (L plus 40) in West Virginia.

We have gone into a great amount of detail, but it is ncessary in order to show the chaotic condition. In fact, thirty-two states in session at this time have thirty-six bills on motor vehicle regulation providing for less gross weight, shorter length and other limiting features, making the transportation picture more complicated than at present.

Interstate Hauling

To illustrate—In operating from New York to Boston it is necessary to go through Connecticut and Massachusetts. New York allows 22,400 pounds per axle, with a train length of 65 feet, with a maximum gross based on a formula of 30,000 pounds, plus the length in feet between the first and last axle x 750, which equals 60x750, plus 30,000 pounds, or 75,000 pounds gross. In Connecticut the length limit is 40 feet. This would require a shorter train, or 35 feet x 750, plus 30,000 pounds, or 56,250 pounds gross. But the law in Connecticut allows a maximum of 40,000 pounds. Whereas in Massachusetts, with a six-wheel truck and six-wheel trailer, on through routes can weigh 80,000 pounds.

Six Wheel

Only a few states give credit to this size vehicle, which would operate to advantage carrying greater loads with the same overall length. Under the existing and proposed laws, with 16,000 per axle, it would be possible to handle 32,000 rear and 8,000 front, or a total of 40,000 gross. This gives a very fine load distribution, and, with 9.75-22 or 10.50-20 balloon tires, we get a uniform load and with ample capacity per tire.

Semi-Trailer Uses

In eighteen states at present it is only possible to use one trailer or one semi-trailer of thirty-five to forty feet in length. There is no question that the truck and trailer is the most efficient, providing greater loading space is provided on the truck.

This leads to the special truck or tractor design having a minimum dimension from front bumper to back of cab. This design allows the front tires to be loaded to capacity which is not possible on the conventional design of truck or tractor. It is not practical to load the front axle over 8,000 pounds for manual steering, using up to 10.50-20 tires. If larger tires are used with their increased carrying possibilities, it will be necessary to provide some sort of power steering—either hydraulic or pneumatic.

In order to stay within reasonable weight limits, the use of lighter materials in the chassis, together with aluminum body, will have to be used. Considering a well designed steel body or tank, it is possible to use aluminum material with a saving in weight of about 40 per cent. and at an additional cost of about $1 per pound. Some extravagant claims as to less unit weight or increased loads have been made in the past by the use of lighter materials, even up to 60 per cent. increase in pay load. This is true when comparison is made between an old heavy design steel tank to that of a modern design aluminum tank. The facts are, there is only about 10 per cent. to 12 per cent. increase in pay load for the same gross weight when comparisons are made on a similar modern design tank or body.

In the design of some tank trailers of the frameless type, claim is made that the steel tank can be designed, weighing about the same as an aluminum tank on a steel frame. In the construction of semi and full trailers, a great saving in length is provided by using round or bevel cornered bodies with very little loss in capacity. This works satisfactorily where coupling and uncoupling is not required. If it is required, the conventional wheeled support can not be used. It is necessary to use a telescopic frame, wheeled supports attached, so that they move back when coupling and forward when uncoupling.

Flat Engines

Considerable interest has been aroused by the use of a flat or pancake engine, and especially as to its application in a short wheelbase truck. Frankly this has received very serious consideration, but there are some very perplexing problems to solve before it can be used to advantage. In fact, it is foolish to try to predict what will or will not be used in the future in motor truck and bus design, and especially when one considers what has been done in the aviation industry, with engines air and liquid cooled, mounted right side up and upside down. Also the several types of radial engines requiring little space from a fore and aft standpoint, made in both the conventional and compression ignition type. Just what effect this will have on motor industry of the future is interesting speculation.

TO HANDLE TRUCKS

Fond du Lac, Wis., April 21.—The McCumber Nash Company has been appointed International motor truck distributors for Fond du Lac and vicinity.

"HOUSE OF MAGIC" AT EXPOSITION

(Continued from Page 5)

thereby permitting the rapid changes of settings necessary to keep the show moving at a fast pace.

William A. Gluesing, who will be in charge of the "House of Magic" show, has announced that there will be a continuous performance, an all-day series of 30-minute shows consisting of six or more short acts. Preparations are being made for different presentations to allow a change of program whenever it becomes desirable.

Under the direction of Mr. Gluesing and his assistants, the star performers will be high-frequency coils, phototubes, amplifiers, stroboscope, cathode-ray oscillograph and ultra-violet—a troupe of distinguished players.

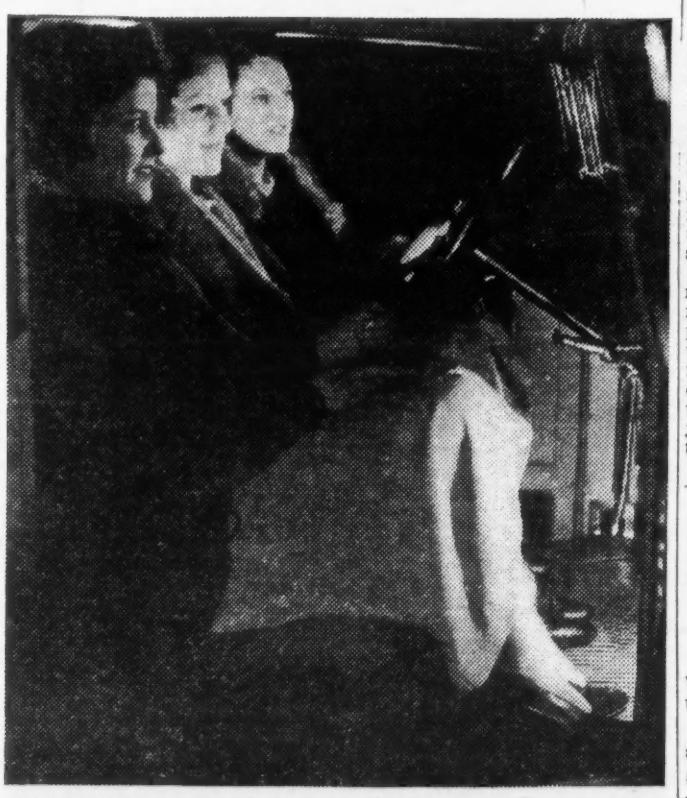
Phototubes will be called into service to prevent the lighting of a candle, to sort out black and white balls as they roll down a chute, to start machinery, to clear smoke out of a glass chimney, to count objects going in one or both directions, to count the flickers in the radiation of an incandescent lamp (which the human eye is not able to detect), and to pick up music being carried through the air on a beam of light.

The cathode-ray, oscillograph will give the audience an opportunity to see what sound looks like, while at the same time it may hear what the jagged line sounds like. Ultra-violet effects will be produced with a mercury-vapor lamp radiating a minimum of visible light and a maximum of invisible, but harmless, ultra-violet rays which will be directed at darkened objects that will apparently create and radiate their own brilliant colors.

A fever machine, Geiger counter, and dental x-ray will be put through their paces for the education and entertainment of visitors. Sequence lighting, without moving contacts, will also be one of the many impressive demonstrations of progress in the electrical art.

DETROIT EMPLOYMENT INDEX SHOWS GAIN

Detroit, April 21.—The employment index of the industrial department of the Detroit Board of Commerce on April 15 was 47.5, compared with 41.8 on March 31 and 33.5 on March 15. On April 15, a year ago, the index was 63.6.



REMOVAL of the gearshift lever from the center of the front compartment in the new Reos makes it possible for three to sit comfortably in the front seat. Also the driver may conveniently enter or leave the car through the right hand door. The selector is on the dash where it is easily reached and can be operated with the ease of a choke control

Gear Shifting Eliminated In New Reo Car Models

(Continued from Page 1)

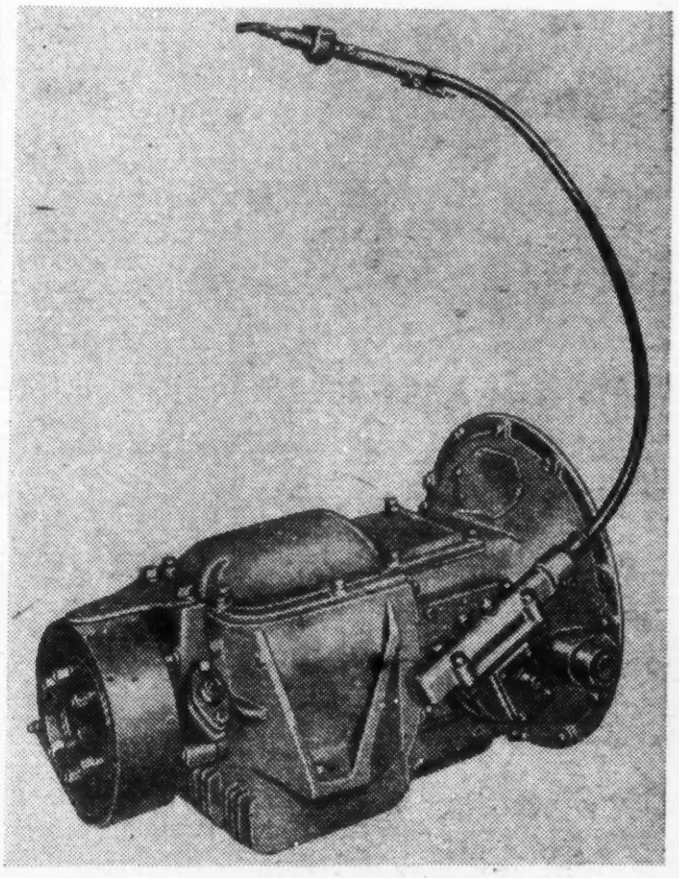
closing of the throttle or cutting off of engine power, or even any releasing of the conventional clutch, controlled by the pedal, the automatic control has selected and engaged a higher ratio. In the same way, when the car is pulling up a hill so steep that the grade drags down the speed, suddenly the engine speed can be heard to increase slightly and the automatic control has selected a lower ratio, allowing the engine to turn over faster to meet the conditions it is encountering.

In stopping the car, the brakes are applied and the clutch is released exactly as in other cars. The control handle is pulled back about an inch until it clocks and the car is in neutral. For extremely heavy pulling, too steep or too difficult in other ways to be negotiated in intermediate gear, two lower gears are provided. To engage these emergency low gears, the control handle is pulled back as far as it will go. The clutch is then engaged and the accelerator stepped on as in any other car. Engagement of the higher of the two low ratios speed increases.

In reversing, with the selector in neutral, the handle is turned to the right and pulled back. The clutch pedal is held in released position, while the selector is being moved into reverse. Engagement of the clutch, with the opening of the throttle, moves the car backward, just as with car having conventional transmissions.

E. G. Poxson, general sales manager, declared today that "it simplifies driving as nothing has before. There are a dozen major advantages that will appear instantly to any motorist. We have been testing and perfecting it secretly for two years. We know now that it is foolproof and that it marks a new era in automobile operation."

It is stated that H. T. Thomas, the chief engineer of Reo, has had an automatic shifter on his own car for two years and has covered more than 50,000 miles during that time. It is also stated that no repairs were necessary during that period and that a change of oil was made only in each 3,000 miles of operation.



ABOVE is shown the new Reo self-shifter. When the car is slowed down the gears shift downward automatically. When the car speed is increased above 16 miles an hour the gears shift back into high

RESPONSIBILITY BILL BEFORE PA. GOVERNOR

Harrisburg, Pa., April 21. — The motorists' financial responsibility bill, which originated in the Senate, was passed by the House and is before the governor.

It provides that any motorist that has had his license revoked must furnish proof of financial responsibility for the next three years. This must take the form of insurance covering $5,000 liability for one and $10,000 for death or injury to more than one person as well as $1,000 property damage liability in any one accident.

Higher Car Prices Seen With Gold Standard Out

(Continued from Page 1)

was the same kind of a rush to get under the wire ahead of the tax.

Automobile exports will be favorably affected by us going off the gold standard, in the opinion of one export manager who won't be quoted.

"If the world goes back to normal conditions because of the change in the monetary situation so that there is no disadvantage to us in the way of exchange, it will mean heavy buying of automobile products abroad," said this man. "I would say that the automobile export business would increase from 500 to 1,000 per cent.

"At the present time, exports have not picked up any over a year ago. There have been individual increases but that's been caused by one company taking business away from another, not a betterment of export buying in general."